

## **KEFI Gold and Copper, KEFI.L**

Pole position at the new frontier



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## Executive summary

KEFI Gold and Copper (KEFI) is exploring and developing mining assets in Ethiopia and Saudi Arabia, part of the vast and highly prospective Arabian-Nubian Shield. The company's most advanced project is Tulu Kapi in Ethiopia which has planned production of 190,000 oz pa, and in which KEFI is expected to own a 65% stake after financing. KEFI also owns a 34% stake in the world class Hawiah VMS project in Saudi Arabia through its joint venture Gold and Minerals. The company has vast exploration areas in both Ethiopia and Saudi Arabia.

**KEFI looks compellingly cheap:** KEFI looks cheap, both in comparison to other African gold companies, and also in terms of its price to NPV. The market is valuing KEFI at an EV of just US\$409/oz of planned annual gold production, and ascribing no value to Hawiah, or to the company's other assets. This valuation represents a 59% discount to a sample of 5 African gold explorers and developers that trades at an average EV of US\$1,001/oz.

**Valuing Tulu Kapi in line with peers, and Hawiah as a copper exploration asset, suggests a current valuation of 5.4p/share.** This is 2.4x the current share price.

**Bringing Tulu Kapi on stream is expected to drive a substantial re-rating:** A sample of 8 African gold producers, with output ranging from 55,000 oz pa to 258,000 oz pa, is currently trading at an average EV of US\$3,239/oz of annual production. This is more than 3x the market valuation of the explorer and developer group. **Valuing Tulu Kapi as a production asset, and factoring in modest further development at Hawiah, could underpin a valuation of 12.3p/share.** This is 5.5x the current share price. Tulu Kapi is expected to commence production in 1Q23. If this valuation is achieved in two years, it would represent an annual return of 134%.

A 'blue sky lite' scenario – 'lite' because the real blue sky scenario is to discover another Tulu Kapi in the Ethiopian exploration licence area – might include an additional 100,000 oz pa production at Tulu Kapi, and expansion of the Hawiah resource to say 100mt (5x the current resource). **In this scenario, KEFI shares could be worth 20.7p/share, roughly 9x the current share price.**

KEFI also looks cheap compared to its NPVs. Combining the expected 65% stake in Tulu Kapi with its 34% stake in Hawiah, the company has a total attributable NPV of US\$333m at US\$1,800/oz gold. **This represents 13.8p/share; the shares are trading at just 16% of this valuation.** As these projects are further developed, the NPV is likely to rise. Doubling the size of the underground resource at Tulu Kapi and extending the underground mine life from 4 years to 8 years, and doubling the size of the resource at Hawiah, could generate an 'Enhanced NPV' of 19.5p/share. These are reasonable exploration targets over the next two years that could underpin a 40% uplift in NPV/share.

**Tulu Kapi highly cash generative:** At US\$1,800/oz gold, the open pit mine would generate expected annual EBITDA of US\$105m pa, and a margin over all-in sustaining costs (AISC) of US\$911/oz. The underground mine is expected to come on stream in year 3 of the open pit operation. It would generate expected annual EBITDA of an additional US\$56m at a margin over AISC of US\$1,032/oz. These figures are likely to turn out to be conservative. Management believes there is potential to triple the size of the underground resource of 330,000 oz gold at 6.26 g/t (PEA, 2016). The resource is open down plunge to the north; the northern most drill hole included in resources, TKBH\_293, returned 90m at 2.8 g/t gold.

Expanding the underground resource would increase the overall grade being processed, leading to greater output, lower unit costs, greater profitability, and a longer mine life.

**Expert funding consortium:** KEFI announced, 22 October 2020, conditional completion of the consortium to fund the US\$221m project development financing for Tulu Kapi. The consortium reflects a deliberate effort to bed down with groups with deep experience in Africa. Its latest additions include the Ethiopian division of a global industrial company, as well as a leading global commodity trader with mining investments in Africa. In addition to these strong partners, the Government of Ethiopia, which is supplying key infrastructure, will own ~20% of the project. Two large African banks are Senior Lenders, East African Trade and Development Bank and African Finance Corporation. Mining investment specialist RAB Capital owns 12% of the London-listed parent, KEFI.

There are two huge positives derived from the completion of the financing consortium. First, **KEFI will now own ~65% of the project, up from 45% expected previously. Also, the company will not have to fund development with a large share issue at the listed company level.**

**Ethiopian exploration area highly prospective:** The areas reserved for KEFI's exploration licences cover a vast 1,120 km<sup>2</sup>. The area hosts two NNE-trending structures, parallel to the Tulu Kapi trend, that host a combined 24km of mineralised strike. There are a number of enticing exploration prospects where historical trench sampling and drilling have returned high grades. Management's conservative target is to identify some 300,000 oz to 500,000 oz of oxide material grading 1.5 g/t or better than could either supplement ore feed to the plant at Tulu Kapi, or be developed as separate heap leach operations. **This could enable production of an initial 50,000 oz pa that would benefit from low strip ratios, low costs, and high gold recoveries.** Given the large area, the highly prospective nature of the geology and past results, the real target must be to discover the next Tulu Kapi.

**Hawiah is shaping up to be a major VMS discovery:** In August 2020, after only 7 months of drilling the company released an initial resource of 19.3mt grading 1.9% copper-equivalent (Cu.eq). A preliminary economic assessment (PEA) based on an initial 7 year operation and August metals prices demonstrated a post-tax NPV<sub>8</sub> of US\$96m and an IRR of 22%. Based on the local geology and comparisons with similar deposits in the Arabian-Nubian Shield, **Hawiah has potential to host a substantially larger orebody.** Management's targets in the next phase of drilling will be to double (or more) the maiden resource, upgrade the resource to the indicated category, define a near-surface oxide zone for a potential starter pit, and commence scout drilling aimed at finding the feeder zone that gave rise to the deposit originally. **Management has said that doubling the size of the resource could increase the NPV<sub>8</sub> to US\$362m.**

**Strong partner in Saudi Arabia:** KEFI has been operating in Saudi Arabia since 2008. It's JV partner is Abdul Rahman Saad Al Rashid and Sons Company Limited ("ARTAR"), a leading industrial group. ARTAR's principal activities are in construction, real-estate, agriculture and health care.

**Two excellent jurisdictions...:** Ethiopia and Saudi Arabia are both supportive jurisdictions. Their governments are focused on developing rich mineral endowments in order to boost foreign income, support local employment and to diversify the economies away from agriculture in the case of Ethiopia, and from oil in the case of Saudi Arabia. Ethiopia aims to increase the mining sector's share of GDP from ~3% now to 10% by 2030. A number of incentives including lower tax rates and royalties have been introduced. Saudi Arabia has introduced a far-reaching new mining code that comes into effect in January 2021.

A number of large resources companies are already engaged. Newmont is exploring the Tigray region of northern Ethiopia, and Norwegian fertiliser giant, Yara International, is developing the Dallol potash project in the northeast. In Saudi Arabia, the Jabal Sayid copper operation is a 50:50 JV between Barrick and state-owned miner Ma'aden.

**...With tremendous geological potential:** The Arabian-Nubian Shield hosts the largest known Neoproterozoic gold resource on Earth. The combination of the subduction-related origin of the Shield, widespread shearing, and metamorphism associated with late Neoproterozoic orogeny are highly favourable for the development of a variety of gold deposit types. Yet, despite this favourable geological setting, and its rich history, the region remains relatively unexplored in modern times. As a result, opportunities abound. Tulu Kapi will be the first modern gold mine in Ethiopia. In Saudi Arabia, Ma'aden has discovered some 8 moz gold in the Central Arabian Gold region in the past 20 years.

**Strong management team:** To drive these projects forward, KEFI has assembled a first-class management team with vast experience in mining, mine planning, development and strategy. Mr David Munro, who oversees operations, was formally MD of Billiton BV. After the merger of Billiton and BHP to form the world's largest mining company, Mr Munro was appointed President of Strategy and Development. Mr Norman Green will oversee project development. He has managed large mining and refining construction projects from concept to completion for more than 30 years and has experience across Africa.

**Potential share price catalysts include:**

- Market recognition that KEFI has achieved a greater-than-expected equity holding in Tulu Kapi – immediate
- Announcement of non-binding term sheets to fund Tulu Kapi project development – immediate
- Confirmation that all finance consortium participants have signed off detailed documents approved by the regulators – 4Q20
- Increasing and upgrading the underground resource at Tulu Kapi – 2021
- Further exploration success and the development of a number of satellite pits in the exploration licence areas around Tulu Kapi – 2021/2022
- Tulu Kapi full production – 1Q23
- Expanding the resource at Hawiah – 2021, and ultimately developing the project
- Potential developments at other prospects

All in all, KEFI has huge opportunities to develop a major gold business. Management securing funding for Tulu Kapi, and a bigger slice of the pie without having to come to the market for its development funding is a massive win for KEFI shareholders. Ethiopia and Saudi Arabia are the new frontiers for gold; KEFI has pole position.

Simon Francis

October 2020

## Key financial data

Figure 1: Shareholding structure

Code		KEFI.L
Share price, 20 October 2020	£p/share	2.25
Shares on issue	Millions	1,867.1
Market cap.	£ millions	42.0
Options and warrants	Millions	84.5
Fully diluted shares	Millions	1,951.6
Fully diluted market capitalisation	£ millions	43.9
Cash on hand, 30 June 2020	£ millions	2.0
Top 20 shareholders:		35%

Source: KEFI

### Key Management:

**Harry Anagnostaras-Adams, Executive Chairman, B. Comm, MBA:** Mr Anagnostaras-Adams was founder or co-founder of Citicorp Capital Investors Australia, investment company Pilatus Capital, Australian Gold Council, EMED Mining, KEFI Minerals and Cyprus-based Semarang Enterprises. He has overseen a number of start-ups principally through the roles of Chairman, Deputy Chairman or Managing Director. He is a qualified Chartered Accountant and a Fellow of Australian Institutes of Management & Company Directors.

**John Leach, Finance Director, BA Ec, MBA, CA (Aust & Canada):** Mr Leach has over 25 years' experience in senior executive positions in the mining industry internationally and is a former non-executive Chairman of Australian-listed Pancontinental Oil and Gas NL. He is a Chartered Accountants in Australia and Canada, and is a Fellow of the Australian Institute of Directors.

**Wayne Nicoletto, Managing Director Ethiopia:** Mr Nicoletto has some 30 years' experience in mining as a Metallurgist and a General Manager, specialising in start-up and operation of gold mines in Africa, Central Asia and Australia. Over the past 15 years, his roles have included General Manager and Country Head of the Edikan Mine, Ghana and SMD, Guinea as well as Vice President of Operations of Boroo Gold Mine in Mongolia. He has a BSc in extractive metallurgy, a graduate diploma in mining from the West Australian School of Mines.

**Kebede Belete, Country Manager Ethiopia:** Dr Belete is a geologist (PhD, Austria; MPhil, UK; BSc, Ethiopia) with more than 25 years of experience. He has worked on exploration projects for the Ethiopian Ministry of Mines, Golden Prospect Mining Company, Minerva Resources and Nyota Minerals in roles including Exploration Manager and Country Manager. Dr Belete has been involved with Tulu Kapi for more than 10 years.

Figure 2: KEFI Gold and Copper share price chart



Source: LSE

## KEFI looks compellingly cheap

- The market is valuing Tulu Kapi at a ~59% discount to its African explorer and developer peers, and paying nothing for Hawiah or potential exploration upside
- Valuing KEFI on EV per oz of production, and in line with its peers, suggests a valuation of 5.4p/share now, and 12.3p/share once Tulu Kapi starts up
- Successful development of satellite pits around Tulu Kapi and a larger resource at Hawiah could underpin a valuation of 20.7p/share

Three valuation scenarios are developed. These range from a current valuation of 5.4p/share based on valuing KEFI in line with other African explorers and developers, to a 'blue sky lite' scenario of 20.7p/share which factors in future exploration success around the Tulu Kapi mine and at Hawiah. KEFI looks tremendously undervalued; there is huge scope for valuations to increase as the company develops.

### Current valuation 5.4p/share

Based on current planned production of 190,000 oz pa (140,000 oz pa open pit and 50,000 oz pa underground), and KEFI's anticipated stake in Tulu Kapi of 65%, the market is valuing KEFI at an EV of just US\$409/oz, with no value at all being ascribed to Hawiah, other projects, or the vast exploration licence areas. This valuation represents a 59% discount to a sample of African explorers and developers that are trading at an average of US\$1,001/oz of planned production.

Assuming the market is ignoring the underground mine (and also ignoring Hawiah and the exploration licence areas) and valuing KEFI on just the planned open pit production of 140,000 oz pa, the current valuation would be US\$555/oz. Even this valuation is 45% cheaper than peers.

**Valuing Tulu Kapi on EV per oz of planned production and in line with peers, and Hawiah as a copper exploration asset, suggests a current valuation of 5.4p/share.** This represents 2.4x the current share price. (In M&A transactions over the past decade, producing copper assets have traded at an average of ~US¢14/lb, feasibility stage assets at ~US¢9/lb, and exploration assets at ~US¢3/lb).

KEFI also looks cheap in terms of EV/oz of measured and indicated gold resources; KEFI's valuation of US\$48/oz represents a 59% discount to its peers trading at US\$118/oz.

### Production start valuation of 12.3p/share

As companies graduate from developer to producer, valuations typically rise. A sample of African gold producers, with annual production ranging from 55,000 oz to 258,000 oz is currently trading at an average of US\$3,239/oz annual production. This is more than 3x the market valuation of the explorer and developer group. **As Tulu Kapi comes on stream, KEFI shares should be re-rated.**

The Tulu Kapi development expenditure of US\$221m is now expected to be financed 60% with senior debt of US\$132m, with the balance of US\$89m being sourced at the subsidiary level from the Government of Ethiopia, local investors, and offtake linked mining finance. **Tulu Kapi appears to be well-funded, and KEFI looks like achieving a beneficial holding of ~65%.** No new equity is



expected to be issued to fund the development of the project.

In addition to Tulu Kapi, KEFI has a solid pipeline of exciting value-accretive growth opportunities. These will require some financing. There is excellent potential for exploration success in the areas around Tulu Kapi, as well as in Saudi Arabia at Hawiah, and at other company assets such as Jibal Qutman for which a mining licence application has been submitted. The conservative assumption is that as momentum is built and successful progress on its project pipeline justifies follow-up, the company raises US\$20m in new equity before Tulu Kapi comes on stream at 4p/share (a ~25% discount to the 'current' valuation) and a further US\$20m afterwards at 10p share (a ~20% discount to the 'start of production' valuation).

On this basis, valuing KEFI in line with other producers suggests a valuation of 12.3p/share once Tulu Kapi starts up. This is 5.5x the current share price. If this is achieved in two years, it would represent an annual return of 134% pa.

### Blue Sky 'Lite' 20.7p/share

Longer-term there is potential for KEFI to develop a larger operation at Tulu Kapi by developing some of the known mineralisation around the mine site. There is also potential for the Hawiah project to become substantially larger and to be developed. A 'blue sky lite' scenario might include an additional 100,000 oz pa production at Tulu Kapi (management's conservative stated target is 50,000 oz pa from 2-3 shallow pits), and expansion of the Hawiah resource to 100mt (5x the current resource). In this scenario, KEFI shares could be worth 20.7p/share, roughly 9x the current share price. If this is achieved in, say, 5 years, it would represent an annual return of 56%.

**Figure 3: Valuations**

Exchange rate, £:US\$1.295		
<b>Current valuation</b>		<b>£ m</b>
Tulu Kapi	190,000 oz pa at US\$1,000/oz pa, 65% stake	95
Hawiah	19.3mt at 1.9% Cu.eq, at US\$3/lb, 34% stake	6
<b>Asset value</b>		<b>102</b>
Shares outstanding		1,867
<b>Valuation, pence per share</b>		<b>5.4</b>
<b>Start of production valuation</b>		
Tulu Kapi	190,000 oz pa at US\$3,200/oz pa, 65% stake	305
Hawiah	38.6mt at 1.9% Cu.eq, at US\$9/lb, 34% stake	38
<b>Asset value</b>		<b>343</b>
Debt	Tulu Kapi funding, US\$132m, 65% stake	66
<b>Net asset value</b>		<b>277</b>
Shares outstanding	Assume US\$20m in new shares issued at 4p/share	2,253
<b>Valuation, pence per share</b>		<b>12.3</b>
<b>"Blue Sky lite"</b>		
Tulu Kapi	290,000 oz pa at US\$3,200/oz pa, 65% stake	466
Hawiah	100mt at 1.9% Cu.eq, at US\$9/lb, 34% stake	99
<b>Asset value</b>		<b>565</b>
Debt	Tulu Kapi funding, US\$132m, 65% stake	66
<b>Net asset value</b>		<b>498</b>
Shares outstanding	Assume US\$20m in new shares issued at 10p/share	2,408
<b>Valuation, pence per share</b>		<b>20.7</b>

Source: Orior Capital

These valuations are sensitive to the price at which new equity is issued. Issuing new shares at 3p/share instead of 4p/share would mean the issue of an additional ~129m new shares. This would lower the valuation at production start to 11.6p/share.

### **Blue sky potential**

There are a number of potential development outcomes that could drive KEFI's share price well beyond the valuations discussed so far.

Exploration in the licence area around Tulu Kapi could deliver better outcomes than expected. The area hosts a number of enticing targets. Mineralisation has been outlined over some 24km along trends that run parallel to the Tulu Kapi trend, yet little modern drilling has been done. The stated target is to develop satellite pits. The real target must be to find the next Tulu Kapi. That could have a profoundly positive impact on valuations.

There is also huge value in being the first enterprise to develop a modern mine in Ethiopia. This comes from the knowledge of how to navigate the process, and structure foreign investment, and the deep relationships that have been built with government. This may well lead to KEFI becoming the partner of choice for other foreign explorers active in Ethiopia. Notably, KEFI's Executive Chairman, Mr Harry Anagnostaras-Adams, is also Chairman of the International Progress Association for Mining in Ethiopia (IPAME).

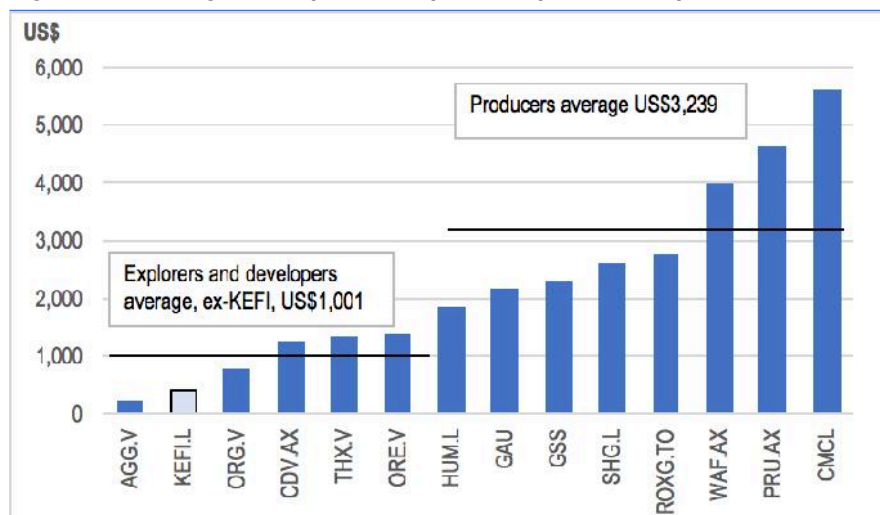
At Hawiah, increasing copper grades at depth at the Camp Lode suggests drilling could be getting closer to the feeder zone of the deposit. Based on drilling results to date KEFI geologists reckon this feeder zone could be at ~500m depth. The Jabal Sayid mine (50% owned by Barrick) in Saudi Arabia is a good example of a 'feeder zone' mine in the same type of mineralisation as Hawiah. Last year, the mine produced 132m lbs copper. Jabal Sayid was formerly owned 70% by Citadel Resources. Equinox acquired Citadel in 2010 for A\$1.25 bn (US\$1.23bn at the time) when Jabal Sayid was described as a 'near-term development project'.

## **Peer valuations**

There are a number of companies operating in Africa, ranging from early-stage explorers to established producers. Compared to these companies, KEFI:

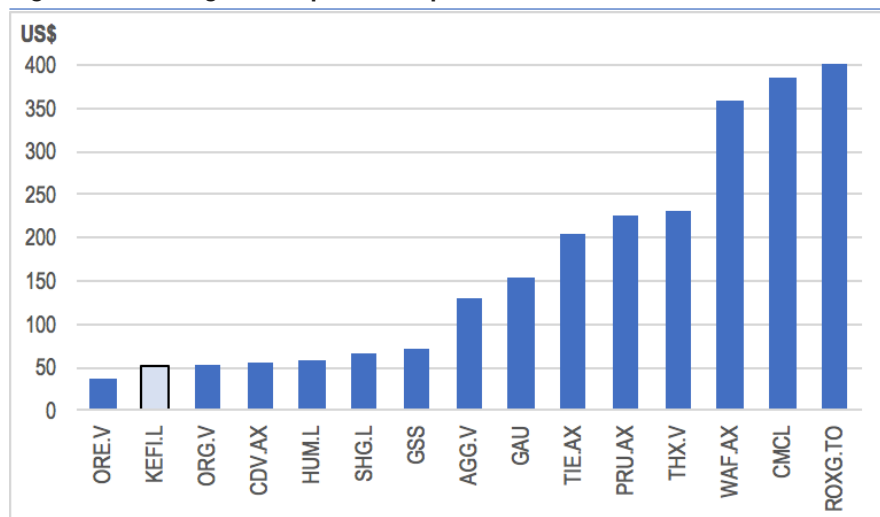
- Is the 2nd cheapest in terms of EV per oz of planned or actual production after African Gold Corp
- Is the 2nd cheapest in terms of EV per oz of measured and indicated resources
- Has the 2nd highest measured and indicated resource grade amongst explorers and developers, after Thor Explorations, and the 5th highest grade amongst the whole sample of 15 companies; generally, the market rewards resource grade over size, grade being a key factor determining profitability
- Has expected all-in sustaining costs below that of current producers; current estimates do not factor in the blending of high-grade ore from the Tulu Kapi underground mine
- Has substantial opportunities to further improve Tulu Kapi's economics by developing the underground resource

Figure 4: African gold companies EV per oz of production, planned or actual 2019



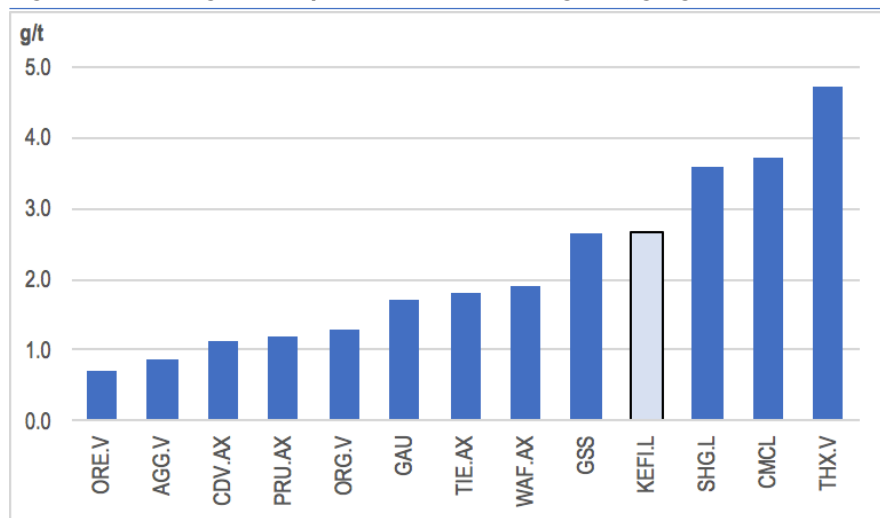
Source: Company data, Orior Capital

Figure 5: African gold companies EV per oz of measured and indicated resource



Source: Company data, Orior Capital

Figure 6: African gold companies, M&I resource grade, g/t gold



Source: Company data, Orior Capital

Figure 7: African gold explorer, developer and producer valuations

Company	Code	EV US\$ m	Output koz/year	AISC US\$/oz	EV valuations			
					EV/P&P US\$/oz	EV/M+I US\$/oz	EV/MII US\$/oz	EV/output US\$/oz
<b>Explorers and developers</b>								
Newcore Gold	NCAU.V	50	-	-	-	-	41	-
Tietto Minerals	TIE.AX	158	-	-	-	204	82	-
African Gold Group	AGG.V	25	100	782	33	130	19	248
<b>KEFI Gold and Copper</b>	<b>KEFI.L</b>	<b>54</b>	<b>190</b>	<b>861</b>	<b>74</b>	<b>48</b>	<b>45</b>	<b>409</b>
Orca Gold	ORG.V	124	228	751	62	53	44	778
Cardinal Resources	CDV.AX	362	287	895	71	55	52	1,261
Thor Explorations	THX.V	108	80	662	231	231	171	1,353
Orezone Gold Corp	ORE.V	164	134	672	100	36	30	1,365
<b>Average</b>		<b>140</b>	<b>170</b>	<b>770</b>	<b>101</b>	<b>108</b>	<b>60</b>	<b>902</b>
<b>Average ex KEFI</b>		<b>157</b>	<b>166</b>	<b>752</b>	<b>107</b>	<b>118</b>	<b>63</b>	<b>1,001</b>
<b>Producers</b>								
Hummingbird	HUM.L	170	116	986	315	59	29	1,840
Galiano Gold	GAU	244	251	1,050	229	155	141	2,164
Golden Star	GSS	412	200	1,140	268	73	32	2,291
Shanta Gold	SHG.L	212	81	779	325	66	66	2,627
Roxgold	ROXG.TO	495	200	1,140	836	406	268	2,751
West Africa Resources	WAF.AX	779	217	590	525	360	280	3,989
Perseus Mining	PRU.AX	1,073	258	972	342	226	162	4,628
Caledonia Mining	CMCL	198	55	856	-	385	175	5,620
<b>Average</b>		<b>448</b>	<b>172</b>	<b>939</b>	<b>355</b>	<b>216</b>	<b>144</b>	<b>3,239</b>
Company	Code	Resources and reserves				Grade		
		P&P koz	M&I koz	Inf koz	M&I+Inf koz	P&P g/t	M&I g/t	Inf g/t
<b>Explorers and developers</b>								
Newcore Gold	NCAU.V	-	-	1,224	1,224	-	-	0.72
Tietto Minerals	TIE.AX	-	860	1,300	2,160	-	1.80	1.37
African Gold Group	AGG.V	755	191	1,139	1,330	0.87	0.86	1.30
<b>KEFI Gold and Copper</b>	<b>KEFI.L</b>	<b>1,050</b>	<b>1,620</b>	<b>100</b>	<b>1,720</b>	<b>2.12</b>	<b>2.67</b>	<b>2.40</b>
Orca Gold	ORG.V	2,854	3,342	711	4,053	1.16	1.30	1.20
Cardinal Resources	CDV.AX	5,100	6,530	460	6,990	1.13	1.12	1.20
Thor Explorations	THX.V	405	469	163	632	4.20	4.72	7.79
Orezone Gold Corp	ORE.V	1,835	5,055	1,107	6,162	0.81	0.69	0.65
<b>Producers</b>								
Hummingbird	HUM.L	676	3,620	2,031	5,651	2.66	2.40	1.51
Galiano Gold	GAU	2,377	3,504	357	3,861	1.38	1.70	1.59
Golden Star	GSS	1,712	6,299	8,113	14,412	2.76	2.66	3.89
Shanta Gold	SHG.L	653	3,200	-	3,200	3.15	3.58	-
Roxgold	ROXG.TO	658	1,356	699	2,055	8.24	12.13	12.40
West Africa Resources	WAF.AX	1,650	2,405	684	3,089	2.40	1.90	1.30
Perseus Mining	PRU.AX	3,489	5,286	2,061	7,347	1.40	1.18	1.19
Caledonia Mining	CMCL	-	805	963	1,768	-	3.72	4.52

EV/output based on planned production for explorers and developers, and actual for producers

Resources and reserves are stated on a 100% basis. EV calculations incorporate companies' various shareholdings.

Source: Company data, Orior Capital

## NPVs

Combining KEFI's expected 65% stake in Tulu Kapi with its 34% stake in Hawiah, the company has a total attributable NPV of US\$333m at US\$1,800/oz gold. **This represents 13.8p/share; the shares are trading at just 16% of this valuation.** This is based on a post-tax, levered NPV<sub>8</sub> for Tulu Kapi of US\$462m, which comprises an NPV<sub>8</sub> of the open-pit mine of US\$362m, and a NPV<sub>8</sub> of the underground mine of US\$100m (both 100% basis). These estimates are based on the DFS and current mine plan for the open-pit mine, and the PEA for the underground project. The Hawiah project (PEA) has an NPV<sub>8</sub> of US\$96m based on August 2000 metals prices.

**Figure 8: KEFI NPV valuations**

Gold price	US\$/oz	1,400	1,800	2,000
Tulu Kapi open-pit (levered)	US\$ m	175	362	454
Tulu Kapi underground	US\$ m	62	100	119
Tulu Kapi total, 100% basis	US\$ m	238	462	573
<b>KEFI 65% stake</b>	US\$ m	<b>154</b>	<b>300</b>	<b>372</b>
Hawiah (August 2020 metals prices)	US\$ m	96	96	96
<b>KEFI 34% stake</b>	US\$ m	<b>33</b>	<b>33</b>	<b>33</b>
<b>KEFI aggregate NPV</b>	US\$ m	<b>187</b>	<b>333</b>	<b>405</b>
<b>KEFI aggregate NPV</b>	Pence/share	<b>7.8</b>	<b>13.8</b>	<b>16.8</b>

Source: KEFI, Orior Capital

### Upside potential

These valuations are likely to be enhanced over the next year or so as KEFI continues to explore. Doubling the underground resource (from the 2016 PEA) at Tulu Kapi to say 660,000 oz could double the 4-year mine life outlined in the PEA to 8 years. Broadly, this could boost the post-tax NPV of the underground project to ~US\$175m (100% basis) at US\$1,800/oz gold.

Further, in August 2020, management stated that doubling the size of the resource at Hawiah could lift the NPV<sub>8</sub> to US\$362m, again on a 100% basis.

**Taken together, these developments could result in an 'Enhanced' NPV attributable to KEFI of US\$472m (same metals prices as above). This represents 19.5p/share, a 40% uplift in attributable NPV based on realistic exploration outcomes over the next 24 months.**

**Figure 9: Potential 'Enhanced' NPV valuation**

Based on US\$1,800/oz gold	US\$ m
Tulu Kapi open-pit (levered)	362
Tulu Kapi underground	175
Tulu Kapi total, 100% basis	537
<b>KEFI 65% stake</b>	<b>349</b>
Hawiah (August 2020 metals prices)	362
<b>KEFI 34% stake</b>	<b>123</b>
<b>KEFI aggregate NPV</b>	<b>472</b>
<b>KEFI NPV pence/share</b>	<b>19.5</b>

Source: KEFI, Orior Capital

**Figure 10: Summary financial and operating data, Tulu Kapi open pit mine, US\$1,800/oz gold**

		2023	2024	2025	2026	2027	2028	2029
<b>Key operating metrics</b>								
Ore Mined	Mt	3.6	2.6	1.6	2.4	2.0	1.9	1.1
Waste Mined	Mt	18.6	19.5	20.5	19.6	18.6	11.6	5.0
Total Material Mined	Mt	22.2	22.1	22.0	22.0	20.6	13.4	6.0
Ore Grade	g/t	1.9	2.0	2.1	2.2	2.1	2.2	3.2
Contained Gold	koz	217	165	104	169	134	132	108
Ore Processed	Mt	2.1	2.1	2.1	2.1	2.0	1.9	2.0
Head Grade	g/t	2.5	2.3	2.0	2.4	2.1	2.1	2.0
Contained Gold	koz	174	157	133	163	133	133	128
Recoveries	%	93%	93%	91%	94%	92%	92%	93%
<b>Gold Recovered</b>	<b>koz</b>	<b>162</b>	<b>146</b>	<b>121</b>	<b>153</b>	<b>123</b>	<b>122</b>	<b>119</b>
Offsite Costs	US\$ m	1	1	1	1	1	1	1
Mining Costs	US\$ m	86	82	76	76	73	57	39
Processing Costs	US\$ m	22	21	21	22	22	22	22
General and admin	US\$ m	9	9	9	9	9	9	9
<b>Operating Costs</b>	<b>US\$ m</b>	<b>117</b>	<b>112</b>	<b>106</b>	<b>106</b>	<b>104</b>	<b>88</b>	<b>70</b>
Royalties	US\$ m	14	21	15	20	14	16	16
Sustaining Capital	US\$ m	17	2	2	4	2	2	3
<b>All in Sustaining Costs</b>	<b>US\$ m</b>	<b>149</b>	<b>136</b>	<b>125</b>	<b>131</b>	<b>121</b>	<b>107</b>	<b>90</b>
<b>All in Sustaining Costs</b>	<b>US\$/oz</b>	<b>920</b>	<b>931</b>	<b>1,031</b>	<b>859</b>	<b>988</b>	<b>872</b>	<b>756</b>
<b>Profit and loss account</b>								
<b>Net Revenue</b>	<b>US\$ m</b>	<b>290</b>	<b>262</b>	<b>217</b>	<b>273</b>	<b>220</b>	<b>219</b>	<b>213</b>
Government Royalties	US\$ m	(14)	(21)	(15)	(20)	(14)	(16)	(16)
Operating Costs	US\$ m	(117)	(112)	(106)	(106)	(104)	(88)	(70)
50% of Sustaining Capital	US\$ m	(8)	(1)	(1)	(2)	(1)	(1)	(2)
<b>EBITDA</b>	<b>US\$ m</b>	<b>151</b>	<b>128</b>	<b>94</b>	<b>145</b>	<b>100</b>	<b>114</b>	<b>126</b>
Depreciation	US\$ m	(58)	(60)	(60)	(47)	(5)	(3)	(3)
<b>EBIT</b>	<b>US\$ m</b>	<b>93</b>	<b>69</b>	<b>35</b>	<b>99</b>	<b>96</b>	<b>111</b>	<b>122</b>
Interest on debt	US\$ m	(18)	(13)	(12)	(9)	(6)	(4)	(3)
<b>Profit Before Tax</b>	<b>US\$ m</b>	<b>74</b>	<b>55</b>	<b>23</b>	<b>90</b>	<b>90</b>	<b>107</b>	<b>119</b>
Tax Payable	US\$ m	0	(15)	(6)	(22)	(18)	(26)	(33)
<b>Profit After Tax</b>	<b>US\$ m</b>	<b>74</b>	<b>41</b>	<b>17</b>	<b>68</b>	<b>71</b>	<b>80</b>	<b>86</b>
<b>Balance sheet</b>								
<b>Total assets</b>	<b>US\$ m</b>	<b>255</b>	<b>269</b>	<b>275</b>	<b>305</b>	<b>362</b>	<b>421</b>	<b>504</b>
Current Liabilities	US\$ m	38	23	49	24	31	8	6
Long-Term Debt	US\$ m	112	101	63	50	30	30	30
<b>Total Equity</b>	<b>US\$ m</b>	<b>105</b>	<b>146</b>	<b>163</b>	<b>231</b>	<b>302</b>	<b>383</b>	<b>468</b>
<b>Cash flow statement</b>								
Cash flow From Operations	US\$ m	138	101	77	115	75	82	88
Cash flow From Investing	US\$ m	(8)	(4)	(1)	(2)	(1)	(1)	(2)
Cash flow From Financing	US\$ m	(64)	(6)	(16)	(33)	(22)	(9)	7
Net cash flow	US\$ m	65	91	59	80	52	72	94
Cash at start of period	US\$ m	0	66	157	217	297	349	421
Cash at end of period	US\$ m	66	157	217	297	349	421	514

Source: KEFI, Orior Capital

## Tulu Kapi a future cash cow

- Tulu Kapi is expected to generate annual EBITDA of US\$113m from the open pit mine and a margin over AISC of ~US\$1,000/oz at current gold prices
- The underground mine could boost EBITDA by a further US\$61m pa
- There is plenty of scope to further develop the underground resource leading to higher average gold grades, better economics and a longer mine life

Tulu Kapi is located in Western Ethiopia in the Oromia Region, some 360km due west of the capital, Addis Ababa. KEFI acquired a 75% stake in the project in 2013, and the remaining 25% in 2014. A DFS was completed in June 2015, and an updated version in June 2017. In 2018, KEFI released a Mine Plan for the open-pit mine that increased plant capacity and accelerated cash flows. That plan now forms the basis of the current 2020 Mine Plan. Ultimately, once all detailed and regulatory approved documentation are closed, KEFI is expected to own a ~65% stake in Tulu Kapi.

The 2020 Mine Plan envisages production from the open-pit mine of 980,000 oz gold over an 8-year mine life, with steady state production of 140,000 oz pa. The underground mine is expected to commence operations in year 3 of the open-pit mine, lifting output by 50,000 oz pa to 190,000 oz.

**Figure 11: Tulu Kapi key production parameters**

	Open pit	Underground
Life-of-mine, years	8	4
First year of planned production	2023	2025
Mine operator	Contractor	Contractor
Waste to ore ratio	7.4:1.0	0.3:1.0
Processing rate, m tpa	1.9-2.1	
Total ore processed, tonnes m	15.4	1.7
Average head grade, g/t	2.1	5.2
Gold recovery	93.3%	93.4%
LOM gold production, oz	980,000	215,000
Average annual gold production, oz	140,000	50,000

**Source: KEFI, Orior Capital**

The project has simple metallurgy, will employ standard equipment, and is expected to ramp up quickly as there is negligible overburden. Production from the open pit mine is expected to be 162,000 oz in the first year of production (2023). Production is expected to be a more normal 146,000 oz in 2024, before the underground mine kicks in in 2025.

KEFI has announced the signing of non-binding terms for the remaining US\$221m of development expenditures for the project. This includes 60% senior debt of US\$132m, some US\$20m investment into the operating subsidiary, Tulu Kapi Gold Mines, by KEFI's Government partners, and US\$40m from experienced African investors including the Ethiopia division of a global industrial company and one of the world's leading commodity traders. The residual US\$29m is expected to be financed within the consortium.

Development of the underground mine is expected to cost US\$37m which will be funded from cash flow from the open pit.

## Strongly cash generative project

Tulu Kapi is expected to be highly profitable. At US\$1,800/oz gold, the open pit mine is projected to have all-in sustaining costs of US\$889/oz and to generate a margin over AISC of US\$911/oz. The mine would be expected to generate average annual EBITDA of US\$105m.

The underground mine is expected to come on stream in year 3 of the open pit operation. At US\$1,800/oz gold, the underground mine is projected to have all-in sustaining costs of US\$768/oz, and to generate a margin over AISC of US\$1,032/oz, and average annual EBITDA of US\$56m.

In full production (open pit and underground mines combined), Tulu Kapi is expected to generate annual EBITDA of ~US\$176m at US\$1,900/oz gold.

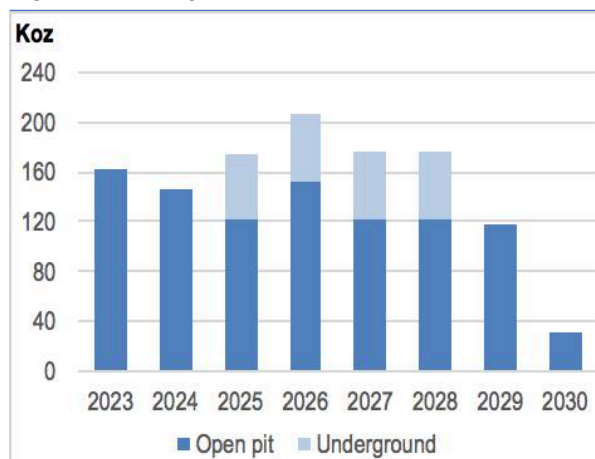
**Figure 12: Tulu Kapi key financial parameters**

<b>Gold price</b>		<b>1,400</b>	<b>1,800</b>	<b>2,000</b>
<b>Open pit</b>				
Revenues, LOM	US\$ m	1,358	1,749	1,944
EBITDA, LOM	US\$ m	461	734	870
NPV <sub>8</sub> , post-tax, 100% basis	US\$ m	175	362	454
<b>Averages, 2023-2029</b>				
Revenues	US\$ m	194	250	278
<b>EBITDA</b>	<b>US\$ m</b>	<b>66</b>	<b>105</b>	<b>124</b>
AISC	US\$/oz	861	889	903
Margin over AISC	US\$/oz	539	911	1,097
<b>Underground (based on 4 years only)</b>				
Revenues, LOM	US\$ m	303	389	432
EBITDA, LOM	US\$ m	144	224	264
NPV <sub>8</sub> , post-tax, 100% basis	US\$ m	62	100	119
<b>Averages, 2025-2028</b>				
Revenues	US\$ m	76	97	108
<b>EBITDA</b>	<b>US\$ m</b>	<b>36</b>	<b>56</b>	<b>66</b>
AISC	US\$/oz	740	768	782
Margin over AISC	US\$/oz	660	1,032	1,218
<b>Open and underground combined</b>				
Revenues, LOM	US\$ m	1,661	2,138	2,376
EBITDA, LOM	US\$ m	605	958	1,134
NPV <sub>8</sub> , post-tax, 100% basis	US\$ m	238	462	573
<b>Averages, 2023-2029</b>				
Revenues	US\$ m	237	305	339
EBITDA	US\$ m	86	137	162
AISC	US\$/oz	829	857	871
Margin over AISC	US\$/oz	571	943	1,129

Source: KEFI, Orior Capital

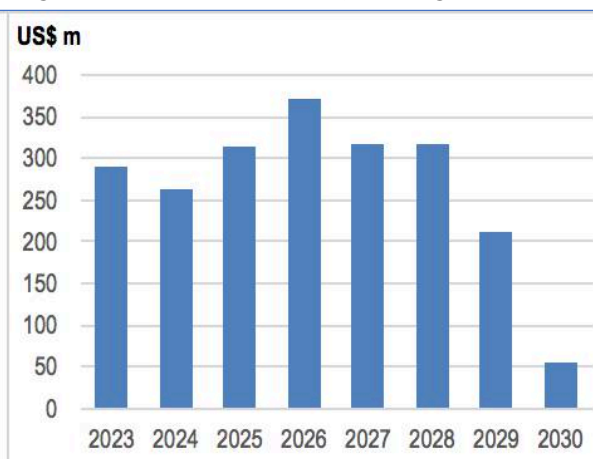


**Figure 13: Gold production**



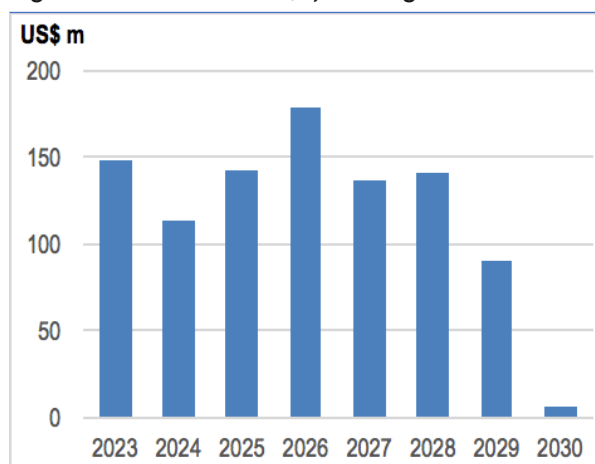
Source: KEFI, Orior Capital

**Figure 14: Revenues at US\$1,800/oz gold**



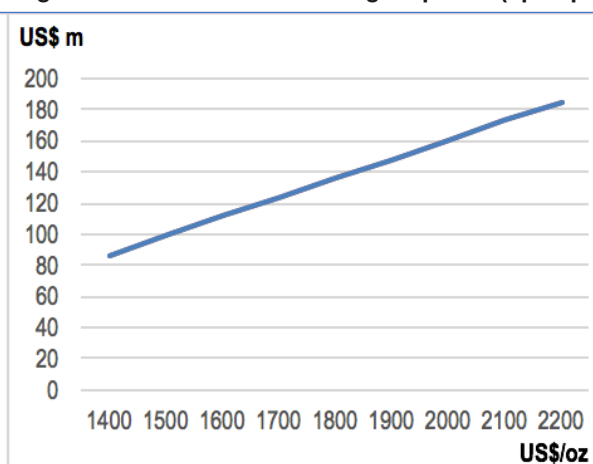
Source: KEFI, Orior Capital

**Figure 15: EBITDA at US\$1,800/oz gold**



Source: KEFI, Orior Capital

**Figure 16: Annual EBITDA and gold prices (open pit)**



Source: KEFI, Orior Capital

## Resources and reserves

The Tulu Kapi project hosts a current resource estimate of 1.72 moz at an average grade of 2.65 g/t gold. The mineral resource has been split above and below the 1,400m RL to reflect the portions of the resource that may be mined in the open pit operation and using underground mining. Of the total resource, some 1.50 moz lies above 1,400m RL and is included in the mine plan for the open pit operation. This was based on a cut-off grade of 0.45 g/t gold. Resources below the 1,400m RL amount to 220,000 oz gold at an average grade of 5.69 g/t. Resources below the 1,400m RL are based on a cut-off grade of 2.5 g/t gold.

Notably, the 2016 PEA for the underground mine was based on the June 2014 JORC-compliant reported indicated and inferred mineral resource of 330,000 oz gold at an average grade of 6.26 g/t, and a cut-off grade of 3.5 g/t. The subsequent 2015 resource update only focused on zones of mineralisation directly below the open pit; other drilled zones of mineralisation accessible from underground which were included in the 2014 reported resource were ignored.

The project has current mineral reserves of 1.06 moz gold at an average grade of 3.25 g/t. This reserve estimate was based on a gold price of US\$1,098/oz, suggesting there maybe scope to bring

additional material into the mine plan.

**Figure 17: Tulu Kapi resources**

Category	Tonnes Million	Gold Grade g/t	Contained Gold Moz
<b>Above 1,400m RL</b>	<b>19.0</b>	<b>2.56</b>	<b>1.50</b>
Indicated	17.7	2.49	1.42
Inferred	1.3	2.05	0.08
<b>Below 1,400m RL</b>	<b>1.2</b>	<b>5.69</b>	<b>0.22</b>
Indicated	1.1	5.63	0.20
Inferred	0.1	6.25	0.02
<b>Overall</b>	<b>20.2</b>	<b>2.65</b>	<b>1.72</b>
Indicated	18.8	2.67	1.62
Inferred	1.4	2.40	0.10

Source: KEFI

**Figure 18: Tulu Kapi reserves**

Category	Tonnes Million	Gold Grade g/t	Contained Gold Moz
Probable, cut-off 0.9 g/t	12.0	2.52	0.98
Probable, cut-off 0.5-0.9 g/t	3.3	0.73	0.08
<b>Total probable reserves</b>	<b>15.3</b>	<b>3.25</b>	<b>1.06</b>

Source: KEFI

## Great potential underground

In the 2016 PEA, modelling of mineable stopes resulted in a 76% conversion rate and a reserve of 1.3 Mt at 5.17 g/t. Planned production was for ~54,000 oz gold pa over an initial four-year mine life. Capex was estimated at US\$37m and expected to be financed out of cash flows from the open pit.

Management's target is for the underground operation to commence in year 3 of the open-pit. The plan is to conduct some further drilling to enhance the underground resource and to complete a PFS during the construction of the open pit project. The underground decline would be started around the time the open pit starts up, with further resource drilling conducted from underground.

**Ultimately, the plan would be to supplement the open pit operation with some higher-grade underground material to achieve say, a 12-year mine life, at higher-grade and better economics than the current planned open pit.**

Assuming the open pit starts up in 1Q23, first production from the underground mine would be targeted for 2025. On this timetable, **the post-tax NPV<sub>8</sub> of the underground project is an estimated US\$100m at US\$1,800.** This NPV valuation only includes the first 4 years of production.

**Management believes there is potential to triple the underground resource to ~1.0 moz at a similar grade to the existing resource.** Mineralisation increases in grade and thickness with depth, and it remains open both at depth, and an estimated 600–800m along strike to the north. Drill hole **TKBH\_293**, the northern most hole drilled into the underground resource intercepted 90m at 2.8 g/t gold. Drill hole **TKBH\_125** intersected mineralisation 140m down plunge, and is interpreted to be east of the main underground shoot.

Another factor is that the current resource, prepared in 2016 when gold prices were lower, is based

on a cut-off grade of 3.5 g/t. (The PEA was based on a gold price of US\$1,250/oz gold). Given the high current gold price there is probably scope to lower this cut-off grade allowing additional material to be brought into the mine plan. The appropriate cut-off grade will be considered during underground mine planning once the open pit operation is underway.

Drilling and assays are likely to cost ~US\$1m based on six drill holes, each 700m deep, and at a cost of US\$200/m including assays. While based on grade alone the underground project will be profitable, KEFI is likely to aim to expand the underground resource to ~500,000 oz to justify development.

## Ethiopia open for business

Ethiopia is a vast country with a population of ~115m, and larger than France and Spain combined. It is the second most populous country in Africa after Nigeria. Twenty years ago, Ethiopia was the third poorest country in the world, but it has grown rapidly since then. In 2000-2018, Ethiopia was the third fastest growing economy globally, after Myanmar and China. According to the World Bank, GDP growth averaged 9.9% pa from 2007 to 2018, and is forecast to continue growing at ~8.5% pa.

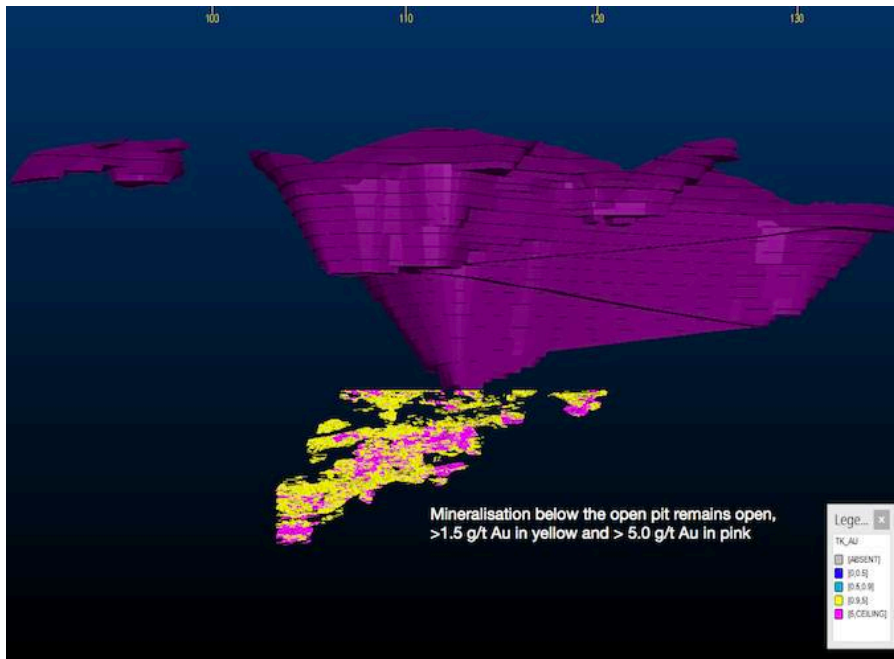
This growth has been driven predominantly by government spending on construction and infrastructure, and growth in services. Despite Ethiopia's vast geological endowment – some geologists believe that western Ethiopia could host the largest gold deposits in Africa – the mining sector has lagged. In 2018, mining contributed just 1% of GDP, and 14% of exports. According to some estimates, 60% to 80% of high-value minerals, and as much as 80% to 95% of construction materials such as limestone, are still mined by artisanal miners.

Recognising the need to transition from an agricultural to an industrial based economy, the government, led by Prime Minister Abiy Ahmed, has launched a wide program of political and economic reforms. (Mr Ahmed was awarded the 2019 Nobel Peace Prize for his work in ending the territorial stalemate between Ethiopia and Eritrea). Reforms have included opening up sectors such as power, finance, telecommunications and mining. In mining, the government hopes foreign investment in the sector will help reduce the country's trade deficit by generating foreign income, and enabling regional development. Under the current Growth and Transformation Plan, the target is for mining to contribute 10% to GDP by 2030.

To achieve this, the government has set about creating a globally competitive mining investment framework. Under Ethiopia's current law, the government is entitled to a minimum stake in mining projects of just 5%. This compares to 15% free carried interest in Guinea, and 16% in Tanzania. Corporate income taxes are 25% for mining companies, and royalties on precious metals are 7%.

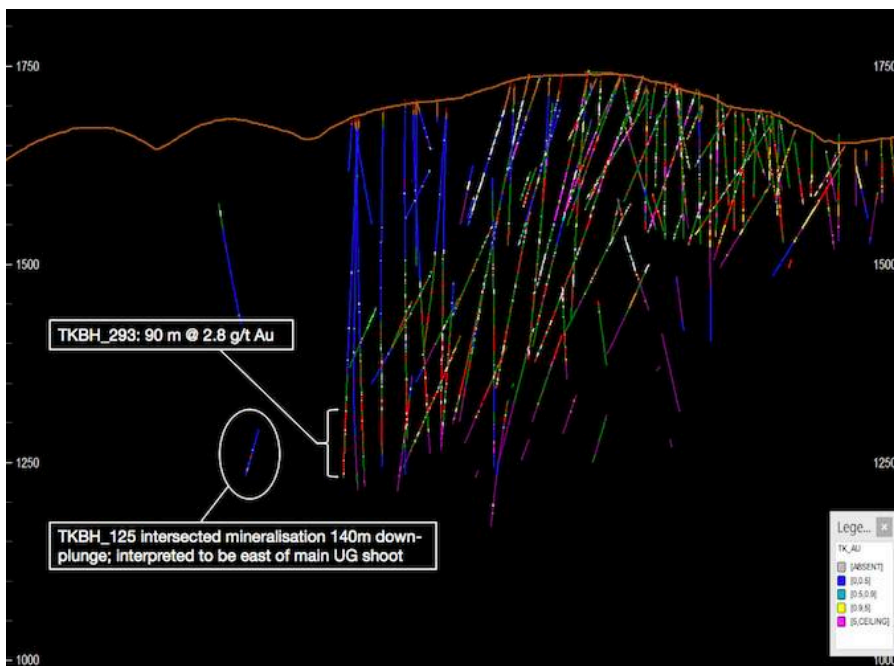
A number of resources companies are now engaged in Ethiopia. Major companies include Newmont GoldCorp which is exploring in Ethiopia's Tigray region and Norwegian fertiliser giant, Yara, which is developing the Dallol potash project in the northern Afar region.

Figure 19: Tulu Kapi existing underground resource below the open pit at 1,400mL



Source: KEFI, Orior Capital

Figure 20: Tulu Kapi drill intersections showing TKBH\_293 and TKBH\_125



Source: KEFI, Orior Capital

## Ethiopian exploration area highly prospective

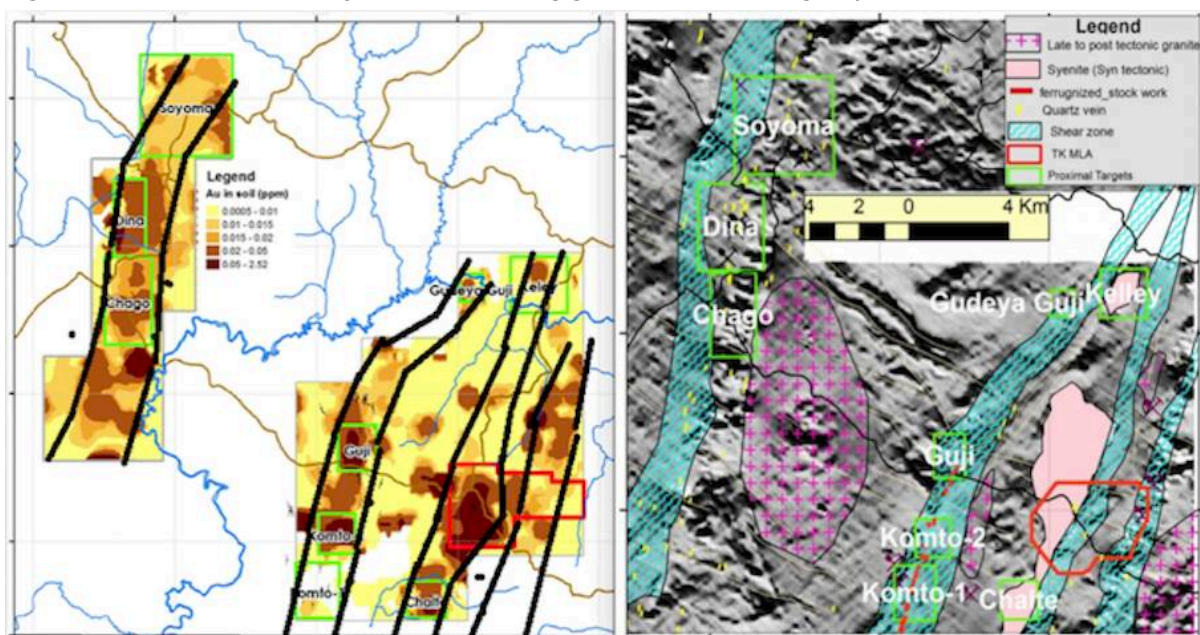
- KEFI's vast exploration licence area hosts two major shear zones parallel to the Tulu Kapi trend that demonstrate widespread mineralisation
- Management aims to develop a number of shallow open-pit satellite deposits could that initially expand production by ~50,000 oz pa at low cost
- The real target is surely to find the next Tulu Kapi

KEFI's exploration licences cover a vast 1,120 km<sup>2</sup> and lie immediately west and north of the Tulu Kapi mining licence. The area hosts two NNE-trending structures that are similar to, and run parallel to, the Tulu Kapi trend. There are a number of enticing exploration prospects. Pending the commencement of Tulu Kapi construction, the licences are reserved for Kefi Minerals Ethiopia, which is 100% owned by KEFI.

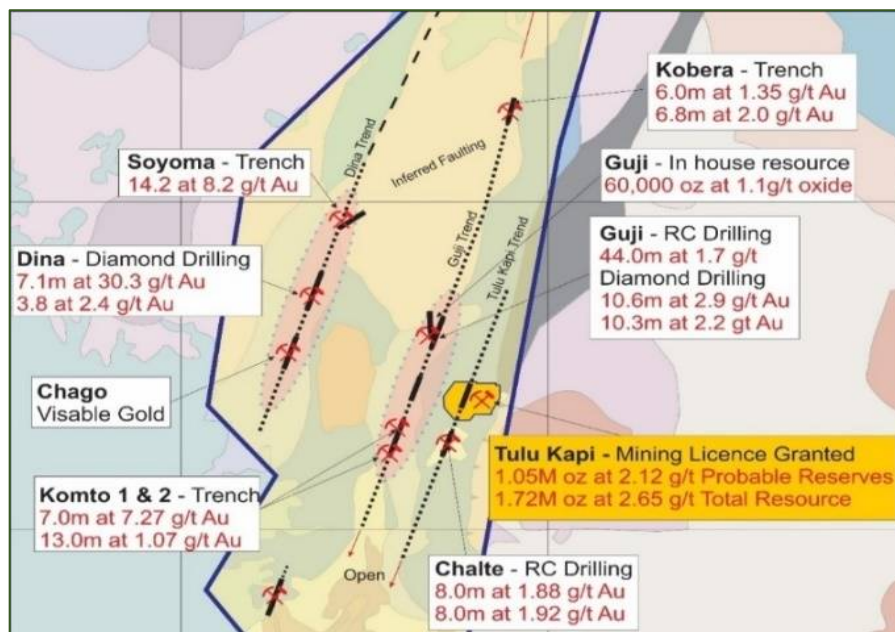
Management's stated target is to identify 300,000 oz to 500,000 oz of gold grading ~1.5 g/t in oxide material in a series of shallow (40m) open pits along the Komto-Guji Belt, immediately west of the Tulu Kapi trend. This material could be processed in two ways. Being within trucking distance of the Tulu Kapi plant, it could provide additional ore feed to the plant. The Tulu Kapi plant has potential for higher throughput rates for softer oxide ores. It could also be developed as standalone heap leach operations. Preliminary metallurgical work using cyanide bottle roll tests returned 94% gold recovery on the trench samples at Komto II. **This could enable production of an initial 50,000 oz pa that would benefit from low stripping ratios, low costs, and high gold recoveries.**

Combined with the Tulu Kapi operations, KEFI's production could then reach ~240,000 oz pa.

**Figure 21: Geochemical surveys identified strong gold anomalies along major shear zones**



Source: KEFI

**Figure 22: Mineralised trends parallel to the Tulu Kapi trend**

Source: KEFI

### Guji Trend

The Guji shear zone lies 3-5 km west of the Tulu Kapi trend. It includes Guji, to the northwest of Tulu Kapi, and has a mapped strike length of more than 9km from Komto in the south to Kobera in the north. It is open along strike in both directions. In 2014-2015, drilling and trenching by KEFI in the Guji area returned a number of compelling results including 44m at 1.7 g/t gold (drill hole **GRC\_067**), 6m at 3.98 g/t gold (**GRC\_070**) and 19.3m at 4.4 g/t gold (trench **GTR\_01**).

At the Komto 1 and Komto 2 prospects, mineralisation is hosted in a ferruginous (containing iron oxides) stockwork in metasandstone. Management noted in 2015 that the mineralisation style has the potential to host a bulk tonnage open cut resource. One drill hole, **UNBH\_16**, drilled at the Komto 1 prospect in the 1970s, returned 10.5m at 1.5 g/t gold. There are also encouraging trenching results at Komto 1 and Komto 2. Trench **K1Tr\_03** returned 7m at 7.27 g/t gold. Trench **K2Tr\_12** returned 13m at 1.07 g/t gold. Trench **K2Tr\_13** returned 6m at 1.24 g/t gold and 5m at 1.07 g/t gold. So far, only limited drilling has tested this trend.

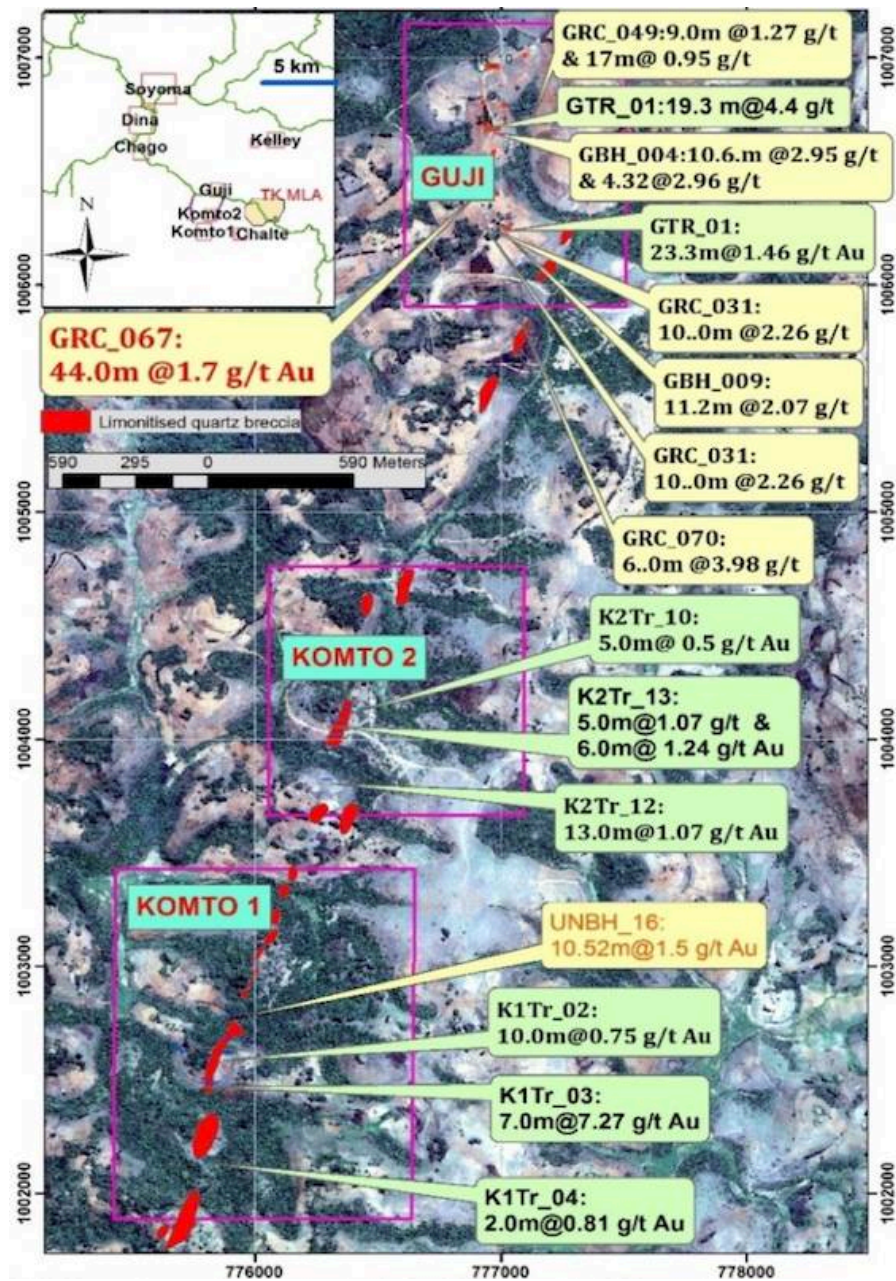
### Dina Trend

The Dina Trend is a NNE-SSW trending shear zone lying some 10km to the west of the Guji Trend. It hosts a number of historical workings. Geochemical surveys to date have shown mineralisation over some 15km. Diamond drilling at the central Dina prospect by Nyoto returned a best result of 7.1m at 30.3 g/t gold from a depth of 69.6m. **Dina has the potential to host a very high-grade deposit.**

The Soyoma prospect lies north along trend from Dina, about 15km northwest of Tulu Kapi. Gold mineralisation is hosted in quartz veins. Historical trenching work returned good results including 14.2m at 8.2 g/t gold. In 2015, gravel excavations revealed two historical trenches and a series of flat lying stacked quartz veins. Channel sampling of these veins returned best results of 3m at 4.2 g/t gold, 2m at 2.75 g/t gold and 1m at 2.65 g/t gold. Altogether the vein zone and historic workings have been mapped over a 2km strike length. **Soyoma is another outstanding geological prospect.**

So far, **KEFI has identified Komto I and II, Guji and Soyoma as the best targets for bulk tonnage open-pit operations.** These targets are all within easy trucking distance of the Tulu Kapi processing plant.

**Figure 23: Best trench (and 1970 UNDP drill hole) results (2015) in the Komoto 1 and 2 prospects, and best drill intercepts at Guji, at the Yubdo exploration licence, to the west of Tulu Kapi**



Source: Tulu Kapi Gold Project: A history of repeated discoveries in Western Ethiopia; Fabio Granitzio, Jeff Rayner and Tadesse Aregay

## Hawiah shaping up to be a major VMS discovery

- Hawiah is a world-class project with substantial potential upside in terms of resources and valuation
- KEFI declared a maiden resource after only 7 months of drilling; follow-up programs are planned over the next 12 months
- An initial PEA has already demonstrated economic viability

The Hawiah project is located in the Wadi Bidah Mineral District in the southwestern part of the Arabian shield in Saudi Arabia. The district comprises a 120km long belt that hosts more than 20 known VMS deposits and historical workings. The project is owned by KEFI's 34% held joint venture company, Gold and Minerals, which holds an exploration license for the project covering 95 km<sup>2</sup>.

The main focus of exploration work has been a 6km long gossan. In 2015, a first pass trenching program returned gold results of 6m at 2.2 g/t, 2m at 8.7 g/t and 8m at 3.04 g/t, with nearly all of the trenches containing anomalous gold. Subsequent geophysical surveys identified an intense north-south trending self-potential (SP) anomaly from surface to a depth of more than 300m, with a 2km strike length, and consistent with the presence of a massive sulphide source. KEFI has now drilled the deposit over a strike length of ~4.5km. Three different alteration zones are apparent: an oxide zone near surface that has supergene gold enrichment; a transition zone with copper enrichment; and a massive sulphide body.

### Maiden resource and initial PEA

In August 2020, after just 7 months of targeted drilling, KEFI announced a maiden inferred resource of 19.3m tonnes grading 0.9% copper, 0.8% zinc, 0.6 g/t gold and 10.3 g/t silver. This represents a copper equivalent (Cu.eq) grade of ~1.9% at current prices. The resource is based on 70 diamond drill holes for 12,027m drilled at 120m to 140m spacing, and 53 trench samples totalling 1,622m. The deposit has only been drilled to 350m; there is excellent scope for further exploration success.

**The size of the resource is only limited by the amount of drilling that's been completed.** The local geology, and comparisons with similar deposits in the Arabian-Nubian Shield suggest there is excellent potential for Hawiah to host a much more substantial orebody.

**Figure 24: Hawiah maiden inferred mineral estimate**

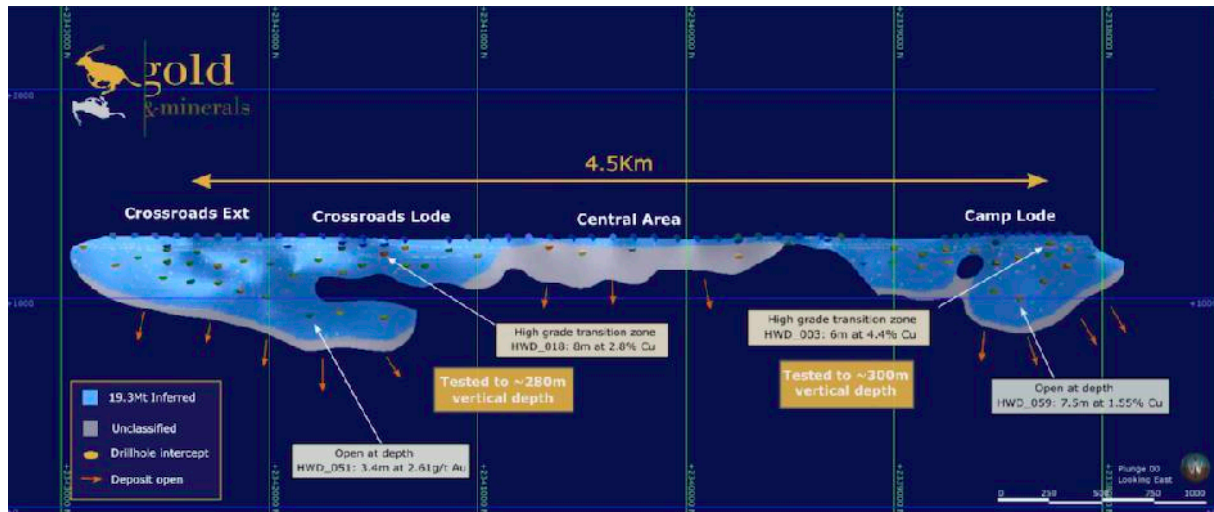
Material type	Tonnes millions	Grade				Contained metal			
		Cu %	Zn %	Au g/t	Ag g/t	Cu kt	Zn kt	Au koz	Ag koz
Oxide, open pit	0.1	0.1	0.03	1.7	3.9	0.1	0.04	7	16
Transition, underground	2.0	1.1	0.8	0.7	12.0	21	16	45	763
Fresh, underground	17.2	0.9	0.8	0.5	10.1	147	141	297	5,595
<b>Total</b>	<b>19.3</b>	<b>0.9</b>	<b>0.8</b>	<b>0.6</b>	<b>10.3</b>	<b>168</b>	<b>157</b>	<b>349</b>	<b>6,373</b>

Source: KEFI

Self-potential anomalies explained: <https://www.agiusa.com/overview-of-the-self-potential-method>



Figure 25: Long section showing extent of VMS mineralisation as currently defined



Source: KEFI

Although it is early stages, in September 2020, management announced an initial PEA for Hawiah. This demonstrated the existing resources would support an underground mining operation of 2.0m tpa for 7 years using long-hole open stoping, two-stage flotation to separate copper and zinc concentrates, and a cyanide leach circuit to allow production of gold doré. **The PEA showed a post-tax NPV<sub>8</sub> of US\$96m and an IRR of 22% based on August 2020 metals prices.**

The PEA is based on a run-of-mine mineral inventory of 13.8mt at 0.87% Cu, 0.78% Zn, 0.53 g/t Au and 9.9 g/t Ag at a net smelter royalty of U\$50/t. This represents about 70% of the inferred resource.

**Management estimates that adding 20mt of ore below the existing Camp Lode, and at the average grade of Camp Lode, could increase the post-tax NPV<sub>8</sub> to US\$362m, and lift the IRR to 28%. Then, funding development predominantly with debt, could lift the levered IRR to above 50%.**

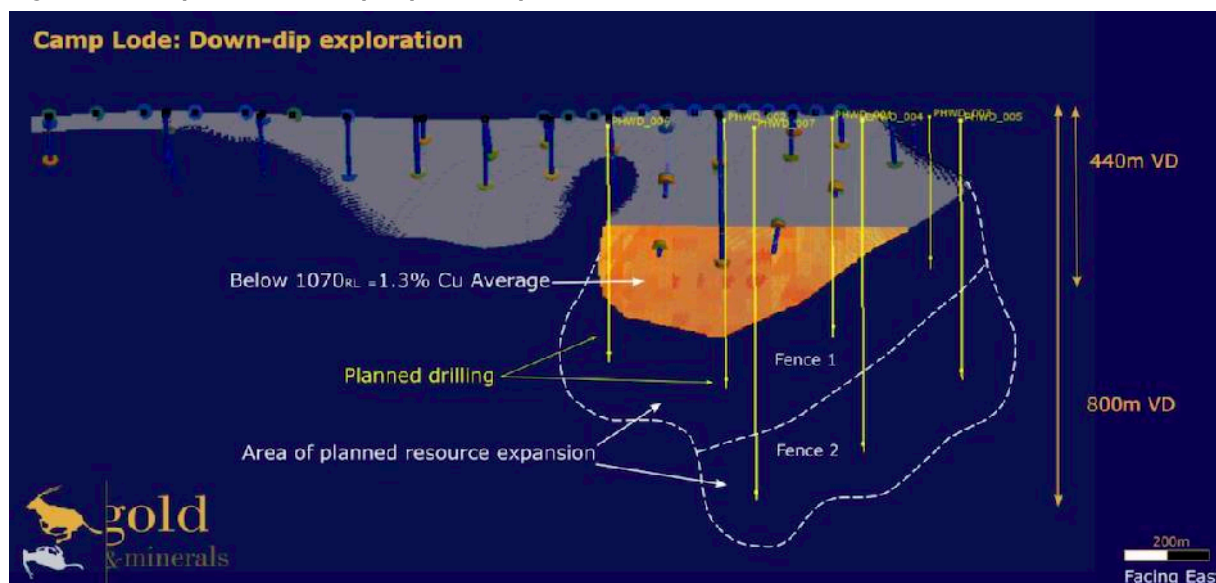
## Next steps

Over the next 12 months, KEFI is expected to undertake a Phase 3 drilling program, and depending upon results, a further phase of drilling, as well as environmental and water studies. Management aims to complete a pre-feasibility study by 4Q21. In particular, management is targeting:

- Doubling (or more) the maiden resource to 40mt with additional drilling
- Undertaking infill drilling aimed at upgrading the resource to the indicated category
- Defining an oxide zone with elevated gold grades for a potential 'starter pit'; several holes in the first drill program identified higher-grade gold near surface
- Commencing scout drilling aimed at finding the feeder zone that gave rise to the deposit originally

In terms of increasing the size of the resource, there is excellent potential at Camp Lode, where the last holes drilled showed elevated copper grades at depth. This may indicate drilling is nearing the source (vent) of the VMS system. These stockwork zones are typically wider (~50m) and can be bulk mined. There is also potential at the Central Zone, which lies over a prominent SP anomaly but had only limited drilling in the last phase or work, and in the transition zone where there is potential to lift the overall grade.

Figure 26: Camp Lode down-dip exploration potential



Source: KEFI

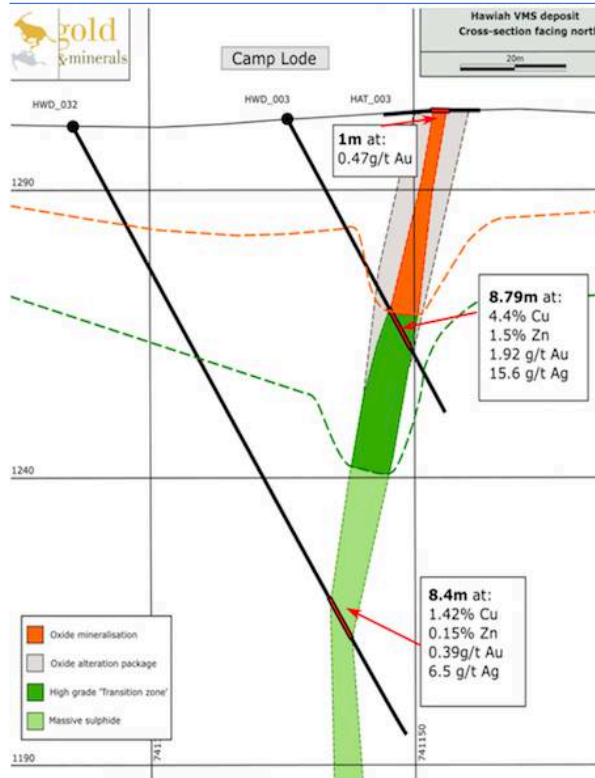
## Drilling to date

Copper-zinc-gold-silver mineralisation has been intercepted consistently over a strike length of 4.5km, with drilling focused on the northern and southern most areas. Three VMS containing lodes have been identified.

- **Camp Lode** in the south, is 1.2 km long and has an average width of 7m. The two deepest holes drilled at Camp Lode, **HWD\_005** and **HWD\_059**, both intersected ~9m of massive sulphide mineralisation; drill hole **HWD\_005** returned 9.0m (estimated true width) of 2.48% Cu.eq from 359m. Drill hole **HWD\_059** returned 8.7m of 2.4% Cu.eq from 321m. In the supergene (transition) zone drill hole **HWD\_003** intersected 6.0m of 5.76% Cu.eq from 39m.
- **Crossroads Lode** to the north, is 1.0 km in length, and has a true width of 5m. It has only been drilled to ~170m depth. Drill hole **HWD\_018** returned 8.0m of 3.77% Cu.eq from 73m. Drill hole **HWD\_022** intersected 7.0m of 4.3% Cu.eq from 23m.
- **Crossroads Extension Lode** to the farthest north is 800m long, with a true width of 5m. It has been drilled to ~350m depth. The Crossroads Extension exhibits lower copper grades, though higher gold and zinc grades, than at Camp Lode and Crossroads Lode. The Lode contributes substantial tonnage to the mineral resources estimate. Key intercepts at Crossroads Extension include 13.5m at 1.74% Cu.eq from 134m (**HWD\_042**), 11.0m at 1.60% Cu.eq from 135m (**HWD\_061B**), and 7.2m at 7.68% Cu.eq (elevated gold) from 48m (**HWD\_067**) in the oxide zone.

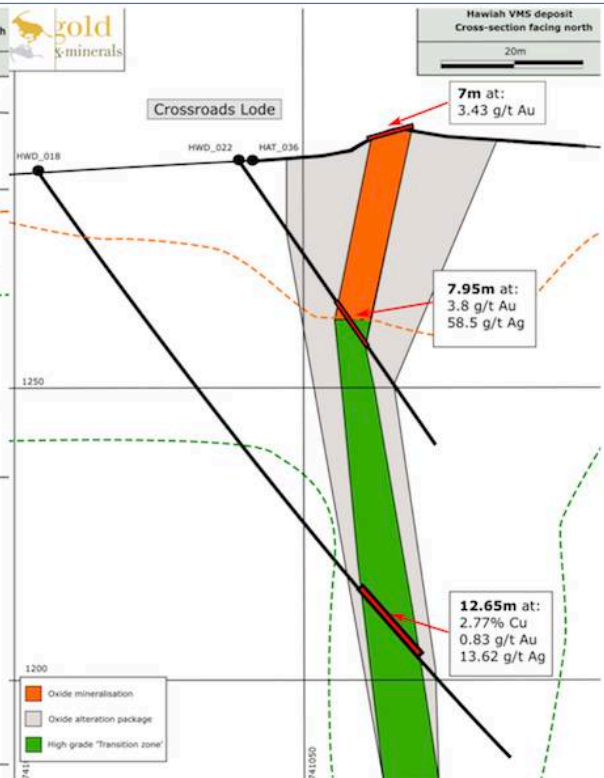
In addition to these three identified Lodes, two holes drilled into the oxide zone in the Central Area returned elevated gold grades. Drill hole **HWD\_006** intersected 4.0m of 3.09 g/t gold (3.06% Cu.eq) from 14m. Drill hole **HWD\_008** intersected 3.0m of 3.90 g/t gold (4.00% Cu.eq) from 12m.

Figure 27: Camp Lode section looking north



Source: KEFI

Figure 28: Crossroads section looking north



Source: KEFI

Figure 29: Hawiah key drill intersects

Hole ID	Total Depth	From	To	Interval	True Width	Cu	Zn	Au	Ag	Cu.eq
	m	m	m	m	m	%	%	g/t	g/t	%
<b>Camp Lode</b>										
HWD_001	200.4	151.0	167.0	16.0	8.0	1.20	0.51	0.51	9.10	1.98
<b>HWD_003</b>	<b>60.3</b>	<b>38.7</b>	<b>47.0</b>	<b>8.8</b>	<b>6.0</b>	<b>4.40</b>	<b>1.50</b>	<b>0.65</b>	<b>15.60</b>	<b>5.76</b>
HWD_004	350.5	269.0	284.0	15.0	10.8	0.92	0.37	0.53	6.92	1.64
<b>HWD_005</b>	<b>389.6</b>	<b>358.6</b>	<b>371.0</b>	<b>12.4</b>	<b>9.0</b>	<b>1.27</b>	<b>1.12</b>	<b>0.66</b>	<b>14.13</b>	<b>2.48</b>
HWD_011	103.0	58.0	72.0	14.0	11.5	0.66	2.48	0.70	11.20	2.38
HWD_012	101.6	49.7	57.5	7.8	6.2	1.13	0.45	0.10	5.70	1.46
HWD_032	126.1	96.7	105.1	8.4	5.2	1.42	0.15	0.39	6.50	1.92
HWD_033	149.5	110.0	139.0	29.0	19.1	1.00	0.39	0.48	7.39	1.69
HWD_036	113.6	83.5	95.7	12.2	7.5	0.57	1.10	0.29	6.65	1.34
HWD_038	91.5	73.1	82.1	9.0	7.0	1.56	0.75	0.70	12.28	2.65
<b>HWD_059</b>	<b>350.5</b>	<b>321.3</b>	<b>335.9</b>	<b>14.6</b>	<b>8.7</b>	<b>1.55</b>	<b>1.03</b>	<b>0.36</b>	<b>11.80</b>	<b>2.42</b>
HWD_060	200.4	171.0	186.0	15.0	8.3	1.60	0.41	0.36	5.71	2.16
<b>Central Area</b>										
<b>HWD_006</b>	<b>40.0</b>	<b>14.2</b>	<b>19.9</b>	<b>5.7</b>	<b>4.0</b>	<b>0.06</b>	<b>0.09</b>	<b>3.09</b>	<b>5.70</b>	<b>3.06</b>
<b>HWD_008</b>	<b>44.6</b>	<b>12.2</b>	<b>16.1</b>	<b>3.9</b>	<b>3.0</b>	<b>0.18</b>	<b>0.25</b>	<b>3.90</b>	<b>5.9</b>	<b>4.00</b>
<b>Crossroads Lode</b>										
<b>HWD_018</b>	<b>106.1</b>	<b>73.0</b>	<b>85.7</b>	<b>12.7</b>	<b>8.0</b>	<b>2.77</b>	<b>0.14</b>	<b>0.83</b>	<b>13.62</b>	<b>3.77</b>
HWD_019	84.8	51.7	61.6	9.8	6.4	1.69	0.04	0.82	13.57	2.64
<b>HWD_022</b>	<b>47.4</b>	<b>23.4</b>	<b>31.3</b>	<b>8.0</b>	<b>7.0</b>	<b>0.02</b>	<b>0.01</b>	<b>3.80</b>	<b>58.50</b>	<b>4.31</b>
HWD_023	55.2	23.6	29.6	6.0	4.5	0.02	0.03	2.88	18.40	2.96
HWD_025	170.7	137.2	146.0	8.9	5.7	0.66	1.28	0.67	14.04	1.94
HWD_037	170.6	150.4	160.1	9.7	5.8	0.47	1.88	0.61	10.28	1.87
HWD_053	164.5	142.5	151.7	9.3	5.2	0.52	1.48	0.56	12.04	1.75
<b>Crossroads Extension</b>										
HWD_040	485.5	457.3	464.5	7.2	5.1	0.80	0.65	0.70	10.79	1.83
HWD_041	185.5	161.0	173.3	12.3	9.3	0.59	0.94	0.68	10.24	1.70
<b>HWD_042</b>	<b>167.5</b>	<b>134.1</b>	<b>153.4</b>	<b>19.3</b>	<b>13.5</b>	<b>0.66</b>	<b>0.82</b>	<b>0.66</b>	<b>12.79</b>	<b>1.74</b>
HWD_049	272.5	252.3	263.8	11.6	9.4	0.54	0.74	0.67	8.54	1.55
<b>HWD_061B</b>	<b>165.1</b>	<b>135.2</b>	<b>149.6</b>	<b>14.4</b>	<b>11.0</b>	<b>0.50</b>	<b>0.86</b>	<b>0.71</b>	<b>9.01</b>	<b>1.60</b>
HWD_062	92.5	65.0	77.2	12.2	8.4	0.38	0.84	0.68	7.80	1.43
HWD_063	317.5	288.0	299.6	11.6	8.2	0.49	1.03	0.68	7.80	1.61
HWD_064	272.5	244.0	255.3	11.3	8.7	0.85	1.34	0.63	13.93	2.11
<b>HWD_067</b>	<b>76.5</b>	<b>47.5</b>	<b>60.5</b>	<b>13.0</b>	<b>7.2</b>	<b>0.13</b>	<b>0.10</b>	<b>7.78</b>	<b>18.85</b>	<b>7.68</b>

Copper equivalent figures based on US\$1,900/oz Au, US\$26/oz Ag, US\$6,700/t Cu and US\$2,500/t Zn

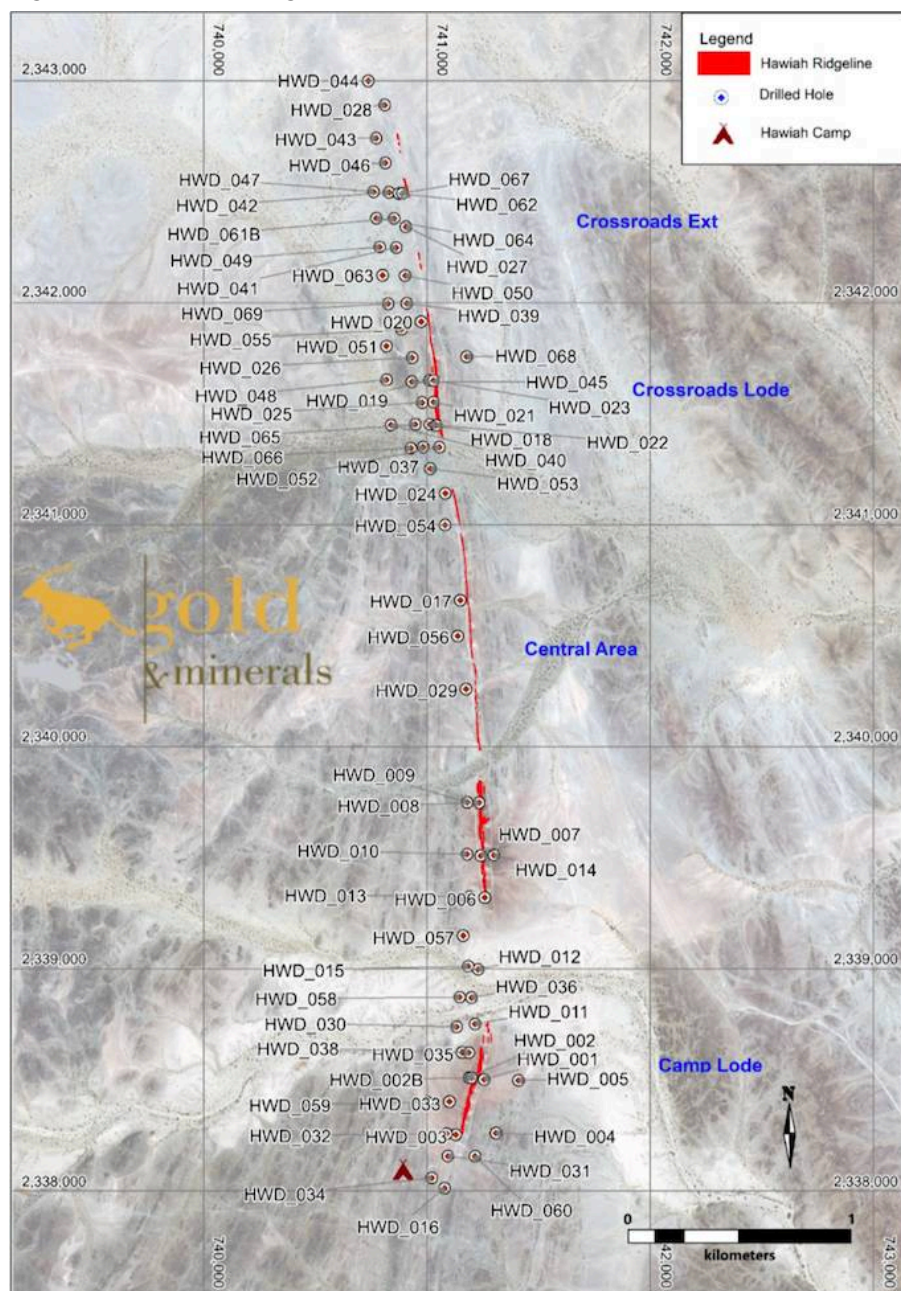
Source: KEFI, Orior Capital

Figure 30: Gossan at Hawiah



Source: KEFI

Figure 31: Hawiah drilling to June 2020



Source: KEFI

## Saudi Arabia: great geology, great opportunity

The Saudi Arabian part of the Arabian-Nubian Shield is a vast area stretching some 1,500 km north to south, and 800 km east to west. The area has a long and rich history of gold mining dating back to around 3,000 BC. The Mahd adh Dhahab mine (مَدِّدُ الدَّهَبِ, literally ‘Cradle of the Gold’), located mid-way between Mecca and Medina, is believed to be the fabled King Solomon’s Gold Mine, and has been linked to the story of the Garden of Eden in the Book of Genesis. It has been estimated to have produced more than 6 moz gold since antiquity. From the 1970s to the mid-1980s, USGS and its French counterpart, Bureau de Recherches Géologiques et Minières (BRGM) were commissioned to document and evaluate mineral occurrences in Saudi Arabia. More than 5,000 historic mines and occurrences were discovered.

Despite this rich history, Saudi Arabia remains relatively under-explored in modern times. Today, there are only a handful of operating mines including Mahd adh Dhahab (gold), Jabal Sayid (VMS), Al Masane (VMS), Al Amar (VMS), and Mansourah-Massarrah (Gold). Opportunities abound; **since 2000, Ma'aden has discovered some 8 moz gold in the Central Arabian Gold region.**

The Jabal Sayid copper operation is a 50:50 joint venture between Barrick and Ma'aden located some 350km northeast of Jeddah. The mine hosts copper resources of ~1.84bn lbs copper at a grade of ~2.5% Cu. Commercial operations commenced in July 2016. According to Barrick, the mine produced 132m lbs copper in 2019 at an all-in sustaining cost of US\$1.51/lb.

### **KEFI looks well placed**

This vast and relatively under-explored minerals wealth, combined with KEFI's experience in country offers something of an advantage. KEFI has been 'in-country' since 2008, evaluating prospects. Further, the company has a strong local partner. Abdul Rahman Saad Al Rashid and Sons Company Limited ("ARTAR") owns a 66% stake in the Gold and Minerals JV, with KEFI being the operator. ARTAR is a leading local industrial group owned by Sheikh Al Rashid and his family. It has investments in construction, real-estate, agriculture, and health care in Saudi Arabia, and overseas.

Gold and Minerals JV has built a large proprietary database and the combination of a strong local partner and KEFI's quiet persistence despite years of cyclically low commodity prices has now resulted in a strong position when the country and the cycle both move upward.

### **New mining code aims to attract investment**

Saudi Arabia's new mining code is set to come into effect in January 2021. Its ambitious aim is ultimately to make the mining sector a third leg to the Saudi economy after oil and petrochemicals.

The Saudi economy has been heavily dependent on oil since the 1970s. According to the CIA, the Kingdom possesses ~16% of the world's proven petroleum reserves, and is the largest exporter of petroleum. The petroleum sector accounts for ~87% of budget revenues, some 42% of GDP, and about 90% of export earnings. Since Saudi Arabia's accession to the WTO in 2005, the government has pursued reforms aimed at diversifying the economy, attracting foreign investment and weening the country off its oil dependence. In April 2016, the government announced a broad set of socio-economic reforms, known as Vision 2030. Low prices and high unemployment rates (in 2019, youth unemployment was ~28%) seem to have provided further impetus to these reforms. Saudi Arabia has a relatively young population, with about 40% of the populace under the age of 25. Saudi officials are particularly focused on employing its large youth population.

Saudi Arabia did introduce new mining regulations in 2004. The code allowed for companies to be 100% foreign owned, included a flat corporate tax of 20%, no royalties on minerals, had no restrictions on foreign exchange or capital repatriation, and included exemptions from import duties on capital items. On paper this provided for an attractive environment, though implementation was lacking. Recognising a need to do justice to the potential of the mining sector, and a desire to diversify the economy, Saudi Arabia's Ministry of Industry and Mineral Resources unwrapped its new mining law In June 2020.

The new law includes 63 articles that address a wide range of issues including financial consideration, sustainability, powers to grant licenses, sector governance and others. The numerous objectives of the new law include encouraging investment in the minerals and related downstream

industries, streamlining the procedures for licence applications, and tightening the rules around sustainability. The new rules come into effect in January 2021.

**Figure 32: Major amendments to the new mining law and expected impact**

<b>Broad area, and policy objectives</b>	<b>Expected impact</b>
<b>Financial consideration, and encouraging investment</b> Determine financial consideration for exploitation Motivate investors to process raw materials within the Kingdom, by cutting consideration for such investments	Achieve equitable outcomes for all investors Boost the Kingdom's revenues Encourage downstream investment Provide local raw materials Clarifying regulatory requirements for potential investors Providing financial incentives to support sector
<b>Sector governance</b> Provide modern technical and financial resources Achieve financial commitment and optimise utilisation of resources Evaluate requirements for obtaining licences	Boost the Kingdom's revenues Increase mining operations Ensure licence holders comply with best technical and environmental practice Reduce violations, to raise investment attractiveness Increase monitoring efficiencies using modern technology Create jobs for local communities
<b>Sustainability</b> Obligate licence applicants to submit environmental studies and development plans Obligate exploitation licences holders finance rehabilitation and mine closure Reduce violations by assessing causes, increasing fines	Develop local communities and provide job opportunities Increase local contribution to local development Protect rights of local communities and contribute to economic development of under-developed regions Attract Saudi youth to work in the sector Ensure standards are in place to monitor environmental compliance, health, and safety Promote social licensing and make mining welcome in communities
<b>Licenses regulations</b> Allow issuance of licenses for small mines Relax requirements and loosen procedures for mining Licences for small investors	Increase number of local developers and small investors Find financing channels for mining licenses Provide safe, attractive investment environment Provide clarity, transparency for mining licences Increase geological and statistical information Increase exploration spending
<b>Powers to grant licenses</b> Facilitate process of issuing licenses, and reserve mining areas for investment Determine which lands are excluded from the law and which lands require approval for mining licences	Ensure stability of mining license over its validity Increase transparency in Ministry's powers to enhance client confidence Develop mineral deposit areas Reduce procedures period Eliminate duplication of local land regulations Have clear governance to determine land-use powers Reduce investors' risk, to encourage investment
<b>Sustainable financing</b> Establish a mining fund at the Ministry	Grant the Ministry a sustainable source of funding for long-term contracting and reducing program costs Assist with exploration and geological survey activities Support rehabilitation of abandoned mines Provide sustainable funds for Mining Services Co. Support development of mining sector personnel

**Source: Argaam.com, Orior Capital**

## Appendix 1: KEFI's senior management team

In addition to the Board of Directors and in-country management, KEFI has assembled a senior management with vast experience in mining, mine planning, technical development and strategic planning. Key personnel include:

### **David Munro - Operations**

Mr Munro began his career as a mining engineer in underground mining and progressed to manage all parts of the minerals value chain. He has been responsible for mining and smelting operations on five continents and in every major commodity. He was MD of Billiton BV. Under his leadership, this business grew into one of the world's largest and lowest cost integrated producers of primary aluminium. After the merger of Billiton and BHP to form the world's largest mining company, Mr Munro was appointed President of Strategy and Development.

As CEO of the then ailing RMC Group Plc, once a constituent of the FTSE 100 Index, Mr Munro overhauled the company's strategy and management. By 2005, the company's prospects had improved and it was sold.

He was also one of the original UK based directors of Kazakhmys Plc, the first former Soviet mining company to list on the LSE main board, in 2005. As Strategy Director, he was instrumental in the establishment of two major open pit copper projects in Kazakhstan, both of which are now in production.

### **Eddy Solbrandt – People & Systems**

Mr Solbrandt began his career in the mining industry in 1986 and has since worked in open cut and underground metalliferous mines, as well as in coal, gold and mineral sands in Australia, New Zealand, USA, Canada, Mexico, UK, Ukraine, Russia, Kazakhstan, Indonesia, Thailand, South Africa, Mozambique and Namibia. He is founder of GPR Dehler, an international management consultancy which specialises in productivity improvement for mining companies worldwide, especially in the areas of human resources development and performance improvement. Mr Solbrandt is adept at providing swift assessment, analysis and development of solutions and strategies for achieving strategic, operational and financial objectives integrating process, people and technology. He is a seasoned facilitator experienced in designing and conducting strategy workshops.

### **Brian Hosking – Planning & Exploration**

Mr Hosking began his career in geology and technical planning in a variety of mining operations. In 1990, he set up his own human resource consulting firm, then led its growth and integration into Transearch, a large global search firm. In 1999, he was elected to serve on the Transearch Board as Executive Director and COO.

In 2003 Brian set up Meyer Hosking and focused on the mining sector developing this niche in London providing strategic services including remuneration advice, management assessment and executive search to a wide range of clients. Brian has established a strong international reputation as a consultant with an in-depth knowledge of the industry. In this capacity, he is regularly retained as a strategic advisor to executive management teams and boards in mining industry.



**Norman Green – Development**

Norman is a graduate mechanical and professional engineer with the key experience of having managed large mining and refining construction projects from concept to completion with more than 30 years' experience in this field. Major projects such as the Hillside Aluminium smelter, the Skorpion Zinc project, and the Husab Uranium mine are included in his handiwork, as well as a number of pure deep level underground mines.

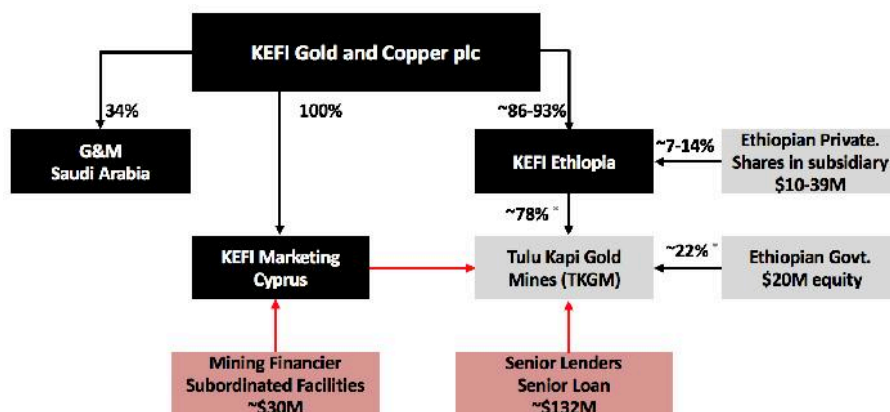
He founded and built Green Team International (GTI) into a successful project engineering firm providing or supporting construction implementation and other engineering support to mainly African mines. Projects studied or handled by GTI as the Project Implementation Team or "Owner's Team" included major gold, uranium, copper, nickel, iron ore and platinum projects in Namibia, South Africa, DRC, Peru and Madagascar.

Norman now conducts projects of special interest with his long-standing associates.

## Appendix 2: Projects

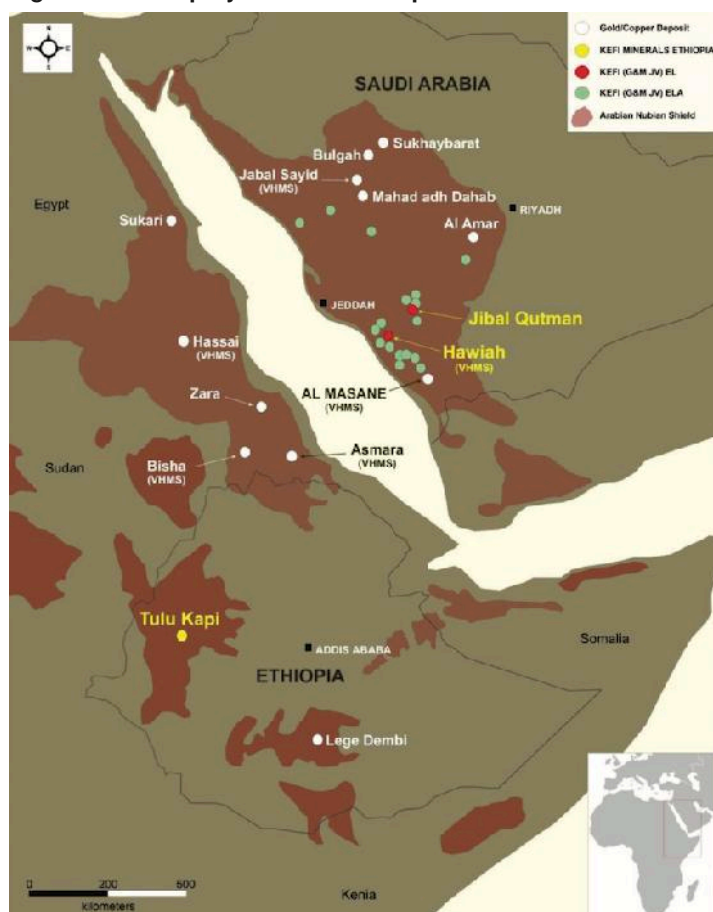
KEFI is exploring and developing mining assets in the Arabian-Nubian Shield. Projects include Tulu Kapi in Ethiopia which KEFI is expected to own ~65% of, and the Hawiah VMS project in Saudi Arabia, held through its 34% owned joint venture Gold and Minerals. KEFI has vast exploration areas in both Ethiopia and Saudi Arabia.

Figure 33: Funding structure, \*fully-diluted basis, after accounting for the Government of Ethiopia’s 5% free-carried shareholding



Source: KEFI

Figure 34: KEFI project location map



Source: KEFI

## Tulu Kapi, Ethiopia

### Location

The Tulu Kapi project is located in Western Ethiopia in the Oromia Region. It lies 360km due west from the capital, Addis Ababa. By road, the journey from the capital is 520km and takes about 10 hours. The project is also accessible by air. Ethiopian Airlines operates five flights a week from Addis Ababa to Asosa, in western Ethiopia. Asosa is about a four-hour drive from Tulu Kapi. There is also an airstrip at Ayra Guliso, located 30km from the project site. Aircraft can be chartered from Addis Ababa. The road journey from Ayra Guliso by a mixture of gravel and dirt roads take about 2 hours.

The project area lies some 9km south of the village of Kelley. The small town of Ayra lies 20km to the west, and Gimbi, an important market town lies 32km to the east northeast. The larger regional centre of Nekemte is about 100km east of the project.

**Figure 35: Tulu Kapi project location**



Source: KEFI Minerals

### Licensing and tenements

The project area is characterised by rounded hills, and deep incised valleys. Elevations vary from 1,550m to 1,770m. The project is situated on a ridge with water drainage to the north and south. Groundwater in the project area is situated in two aquifers. The mining license area is 7km<sup>2</sup>.

Land use in the area is mainly for agriculture. Ridges are usually left to grass for cattle. Hill sides are terraced for seasonal crops including corn, maize, teff (an ancient grain from the Horn of Africa, most notably Ethiopia and Eritrea), and other staples. The valleys are typically forested, and provide good cover for coffee plantations.

Rainfall is seasonal. There is a pronounced monsoon season from July to September. Daily temperatures range from 13°C to 32°C immediately ahead of the rainy season, and from 14°C to 24°C in July and August, which are typically the coldest months. Exploration activities can be

maintained year-round, with activities somewhat reduced during the rainy season. Commercial scale mining activities will be maintained year-round.

### Ownership structure

#### Project history

Small-scale surface mining took place in the 1930s, though there is no evidence of sustained artisanal efforts. This probably reflects the fine nature of the gold mineralisation; the project hosts a high proportion of refractory gold. The earliest modern exploration did not take place until the 1970s, when reconnaissance level work was undertaken under the guidance of the United Nations Development Program. The project was only drilled in earnest in 2005 to 2009 when Minerva drilled 34 holes. KEFI acquired the project in two stages in 2013 and 2014.

In April 2015, under KEFI's ownership, the former exploration licence was converted to a Mining Licence. This licence gives KEFI the right to build and operate a mine at Tulu Kapi. The company also has a Mining Agreement with the government of Ethiopia that sets out things like taxation and royalties. The licence and agreement are valid for 20 years. The mining licence can be renewed for periods of a further ten years.

Since acquiring the project, KEFI has made a number of changes to the proposed mine plan.

#### Project history

**Figure 36: Snapshot of the project history**

Period	Entity	Activity
1930s	Artisanal miners	Small-scale surface mining focused on easily accessible gold-bearing saprolite There is no evidence of consistent artisanal activity in the area
1939	S.A.P.I.E., Italy	Reported reserves of ~37 koz gold in alluvial deposits, saprolite and quartz veins Exploration ceased in 1941
1968	Ethiopia	Formation of the Geological Survey of Ethiopia
1969-1972	UNDP	First 'modern' exploration comprising reconnaissance and detailed mapping Identified the Nejo-Yubdo mineralised belt including Tulu Kapi and satellite deposits Work included 3 diamond holes, 362m, immediately north of the planned open-pit; Best intercepts were 0.7m at 27 g/t gold and 26.2m at 2.8 g/t gold
1996-1998	Tan-Range Resources (Canada)	Acquired the Tulu Kapi-Ankori exploration licence (20 km <sup>2</sup> ) in 1996 Exploration included 5 diamond holes, with best intercept of 6m at 2.48 g/t gold
2005-2009	Minerva Resources	Conducted three phases of diamond drilling totalling 6,908m over 34 holes including the 'discovery hole' which returned 37m at 4.61 g/t gold. Minerva also undertook mapping, trenching and ground geophysics.
2009-2013	Nyota Minerals	Minerva was acquired by Nyota in 2009. Nyota announced a maiden inferred resource of 690 koz gold in 2009. Subsequent exploration including 189 diamond holes and 302 RC holes totalling 86,873m supported an updated resource of 1,872 koz in 2012 and a DFS. The decline in the gold price in 2013 meant Nyota was unable to fund the project.
2013	KEFI	KEFI acquired 75% of the project in December 2013
2014	KEFI	KEFI acquired the remaining 25% for £750,000 plus 50m shares in June 2014
2015	KEFI	DFS released for Tulu Kapi
2017	KEFI	Updated DFS released for Tulu Kapi
2018	KEFI	KEFI announced plans to increase plant capacity to ~2m tpa
2020	KEFI	Announced conditional completion of consortium to fund the Tulu Kapi project

**Source: KEFI, Orior Capital**

In the June 2015 DFS, management recognised the benefits of focusing on a smaller scale selective

open-pit mine, delivering 1.2m tpa ore to a conventional CIL plant and, adopting a simple crushing and grinding circuit. At the time, extensive metallurgical work demonstrated that an overall recovery of 91.5% was achievable. Planned gold production was 960,000 oz over 13 years, averaging ~75,000 oz pa. All-in sustaining costs were estimated to be US\$780/oz.

Subsequent to the 2015 DFS, a number of further refinements were identified and incorporated into a revised DFS in June 2017. This included increasing the capacity of the process plant from 1.2m tpa to 1.5m tpa, replacing the SAG and ball mill with a larger SAG-only mill, increasing the target grind to 150 µm, relocating the tailings storage facility downstream to reduce capex, and a plan for mine operations to be undertaken by an experienced African mine contractor.

The original plan was for the mine to be owner operated. This would have entailed training a local workforce with little experience in mining to a level where it could achieve the high productivity rates associated with modern mining. While this is still achievable, management decided to use an experienced contract miner. This has the effect of reducing start-up and operating risks and also results in lower initial capex.

The increase in processing capacity in the 2017 DFS essentially involved the earlier processing of material that would otherwise have been stockpiled for later years of the mine life.

In May 2018, after discussions with the project funding consortium, KEFI published its 2018 Plan. Under the 2018 Plan, planned processing plant capacity was further increased to 1.9m tpa to 2.1m tpa, in a bid to accelerate project cash flows. This now forms the basis of the 2020 Plan.

**Figure 37: Progression of KEFI feasibility studies and mine plans, Tulu Kapi open-pit**

	2015 DFS	2017 DFS	2020 Plan
Life-of-mine, years	13	10	8
Mine operator	Owner	Contractor	Contractor
Waste to ore ratio	7.4:1.0	7.4:1.0	7.4:1.0
Processing rate, m tpa	1.2	1.5-1.7	1.9-2.1
Total ore processed	15.4	15.4	15.4
Average head grade, g/t	2.1	2.1	2.1
Gold recovery	91.5%	93.3%	93.3%
LOM gold production, oz	961,000	980,000	980,000
Average annual gold production, oz	95,000	115,000	140,000
All-in sustaining costs, US\$/oz	724	801	856
All-in costs, inc initial capex, US\$/oz		937	1,066
Average annual net operating cash flow, US\$ m	50	60	78
Payback period, years	3.5	3	3

Source: KEFI

### Geology and mineralisation

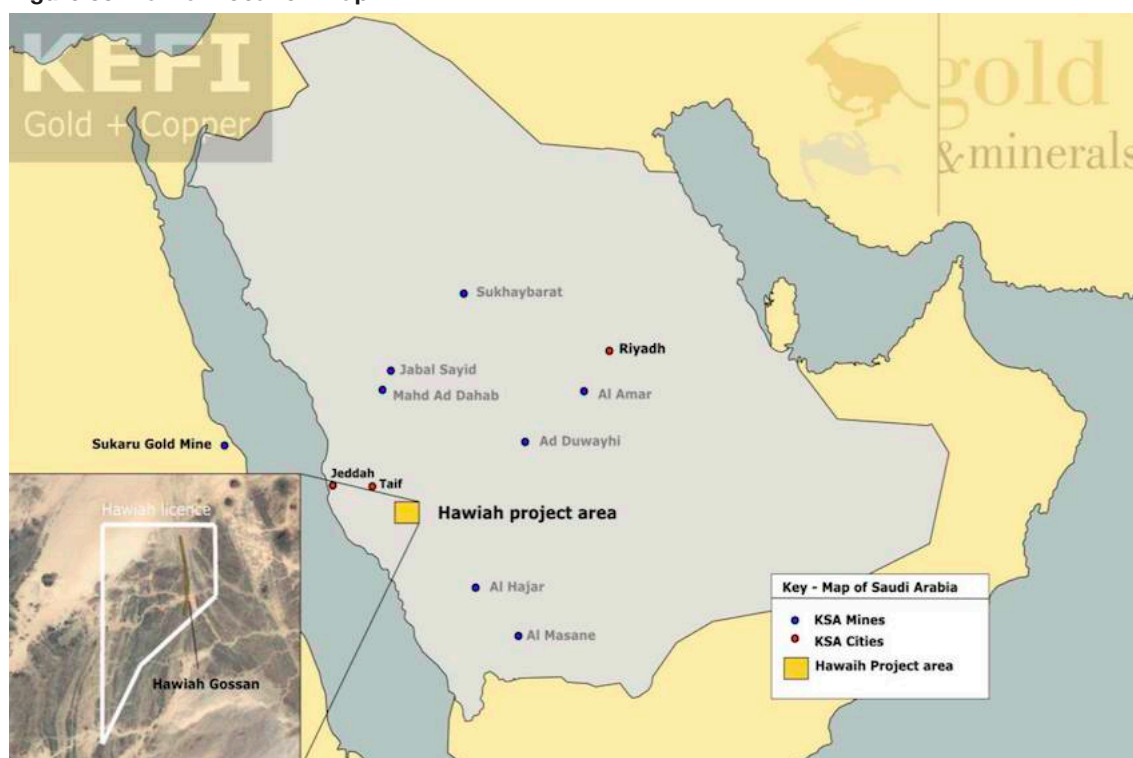
The primary mineralisation at Tulu Kapi is hosted in mafic syenite. Unaltered syenite is predominantly a medium to coarse-grained rock comprising 60-70% pink to white alkali feldspar, 20-25% plagioclase, and 10-15% ferromagnesian minerals, and minor interstitial quartz. Mineralisation is associated with shallow (30°) northwest dipping zones of dense quartz-veining, enveloped by an auriferous highly albitised, metasomatic alteration centred on the Bedele shear zone. The albitised zones are lensoid in nature and comprise discrete stacked bodies that pinch and swell both along strike and down dip. Large-scale fault structures trending northeast-southwest have been identified within the Tulu Kapi deposit, but the displacement of the mineralisation is minor.

## Saudi Arabia projects

### Hawiah

Hawiah is located 80km southeast of Taif, the regional capital, within the Wadi Bidah Mineral District in the southwestern part of the Arabian shield. The district comprises a 120km long belt that hosts more than 20 volcanic massive sulphide (VMS) known occurrences and historical workings. Hawiah lies at the northern limb of the belt. The project area is well served by a regional road network. There are no permanent inhabitants, though the area is used by local Bedouin as seasonal grazing lands.

**Figure 38: Hawiah location map**



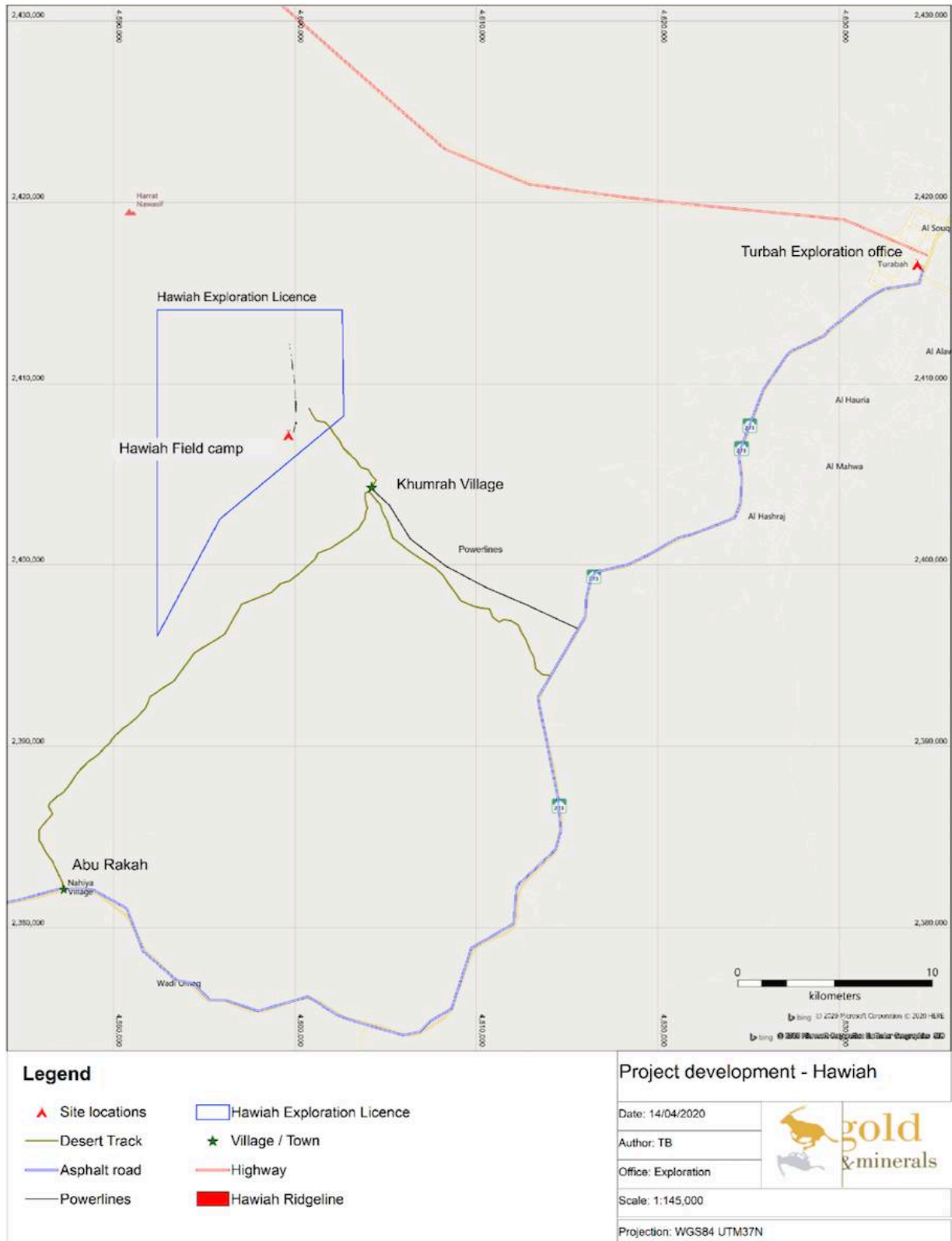
Source: KEFI

Gold and Minerals holds an exploration licence covering 95km<sup>2</sup>. The licence was awarded in December 2014, and renewed in 2018.

The Hawiah deposit is exposed as a prominent ridge line extending north-south over ~4.5km. It varies in thickness from 1m to 15m. The ridge is interpreted as the modern-day expression of the original VMS palaeohorizon. Mineralisation comprises a suite of gossanous ex-massive sulphides, chert breccias, banded ironstones and intermediate volcanic breccias. The deposit has been subject to varying degrees of supergene alteration as a result of groundwater interactions.

The project was briefly explored in the 1980s by BRGM but since then has been ignored. BRGM was focussed mainly on gold, appearing to have ignored base metals mineralisation.

**Figure 39: Hawiah map, Makkah region of Saudi Arabia**



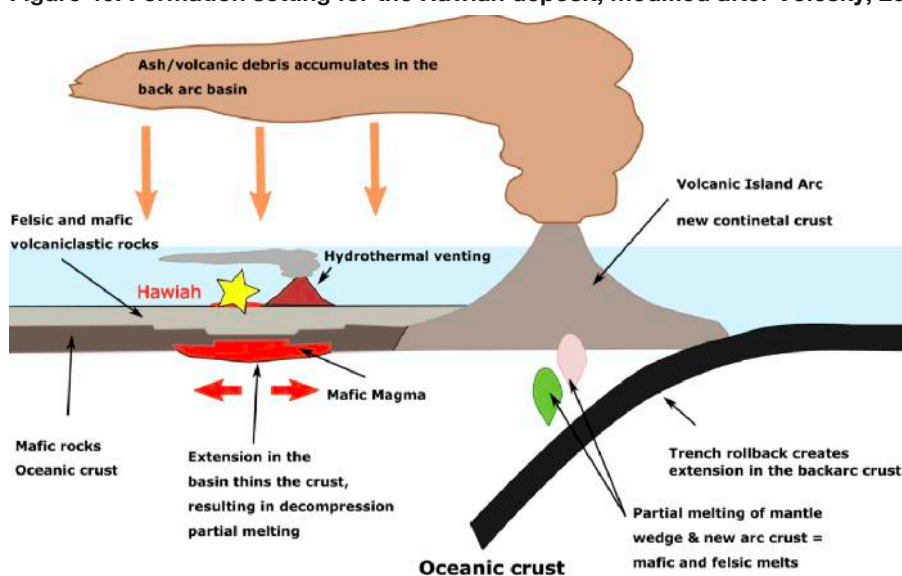
Source: KEFI

### The importance of VMS deposits

VMS deposits are an important source of copper, accounting for ~6% of global production), as well as a significant supplier of zinc (~22%), lead ~10%), gold (~2%) and silver (~9%). VMS deposits tend to follow tectonic plate boundaries and ancient underwater volcanic activity and tend to occur in clusters, with sometimes as many as 20 or more such deposits within an area of several tens of square kilometres. This clustering of ore lenses in close proximity, and the polymetallic nature of the deposits suggests potential for long-term production.

The Arabian-Nubian Shield hosts a number of notable VMS deposits including Bisha (Nevsun and Zijin Mining) and Asmara (Sichuan Road and Bridge Mining Investment Development) in Eritrea, Hassaii (Ariab) in Sudan, and Jabal Sayid (Barrick and Ma'aden) and Al Masane (Al Kobra Mining) in Saudi Arabia.

Figure 40: Formation setting for the Hawiah deposit, modified after Volesky, 2017



Source: KEFI

## Jibal Qutman

### Location

The Jibal Qutman gold deposit and exploration licence area are located in the Asir Terrane in the central southern region of the Arabian-Nubian Shield. The project is situated ~110km east-northeast from Bisha City. It is located in a remote, uninhabited area and has not been exploited previously. The exploration licence, issued in 2012, covers an area of 99.9 km<sup>2</sup>.

### Project history

Some 430 RC holes and 77 diamond holes were drilled at Jibal Qutman in 2012-2015, including exploration, hydro-geological and metallurgical holes. Except for ancient workings and mineral exploration performed by the Deputy Ministry of Mineral Recourses and Gold and Minerals, the project has not been commercially exploited.

The first field-reconnaissance of the area was performed by the United States Geological Survey (USGS) on behalf of the then Directorate General of Mineral Resources (DGMR) in 1979. During 1983, gold occurrences were explored by the DGMR which drilled three diamond holes. The



conclusion from this work was that the deposit was sporadic and low grade, and did not, at the time, represent a potentially viable gold resource.

The deposit overlays part of the north-south trending Nabitah-Tathlith Fault Zone, a 300km long structure along which there are more than 40 gold occurrences and historical gold mines.

Subsequent mapping by Gold and Minerals, defined additional unmapped workings, new parallel gold-bearing veins, and extended the previously known strike of quartz vein sets from 400m to 2.9km. The deposit exhibits the features of a shear zone-hosted, mesothermal gold deposit.

KEFI has discovered seven mineralised gold zones within a 5km long (north-south) by 1 km wide (east to west) area. The main zone of the orebody is 900m long vein system, with a single high-angle vein up to 4m thick that splits into multiple veins along strike. The ore consists of pyrite and minor tetrahedrite, galena and sphalerite with coarse gold.

### **Geology and mineralisation**

Jibal Qutman is a mesothermal or orogenic-style quartz-vein-hosted gold deposit located in the central southern region of the Arabian-Nubian Shield. The project currently comprises separate areas of mineralisation and is open along strike, down dip and at locations peripheral to the known mineralization.

The mineralised zones are interpreted as quartz vein and shear-zone related gold mineralization, hosted by folded Upper Proterozoic volcanic and sedimentary units. The shear zones occur along the Nabitah-Tathlith fault zone, and range in thickness from tens to hundreds of metres.

According to KEFI, gold mineralisation is associated with the shears in three predominant styles:

- Quartz veins and surrounding stockwork within a carbonatized and albitized alteration envelope, with gold accompanied by disseminated pyrite and minor copper sulphides and oxides
- Sub-horizontal unsheared carbonatized and albitized volcanic bodies, with gold accompanied by large quantities of pyrite and very minor amounts of other sulphides
- A strongly sheared and folded carbonaceous meta-sedimentary unit, strongly sericitised and containing a significant quantity of pyrite. This mineralisation style accounts for only a small part of the resource

Mineralization extends some 7km along strike, currently in 7 (maps shows 6) discrete zones which outcrop at surface and were the focus of expanding exploration works. The width of the near surface mineralization is 500m at the widest zone, and comprises a closely stacked series of discrete mineralized zones varying in width from 1m to 15m and extending to a depth of ~150m.

### **Resources and PEA**

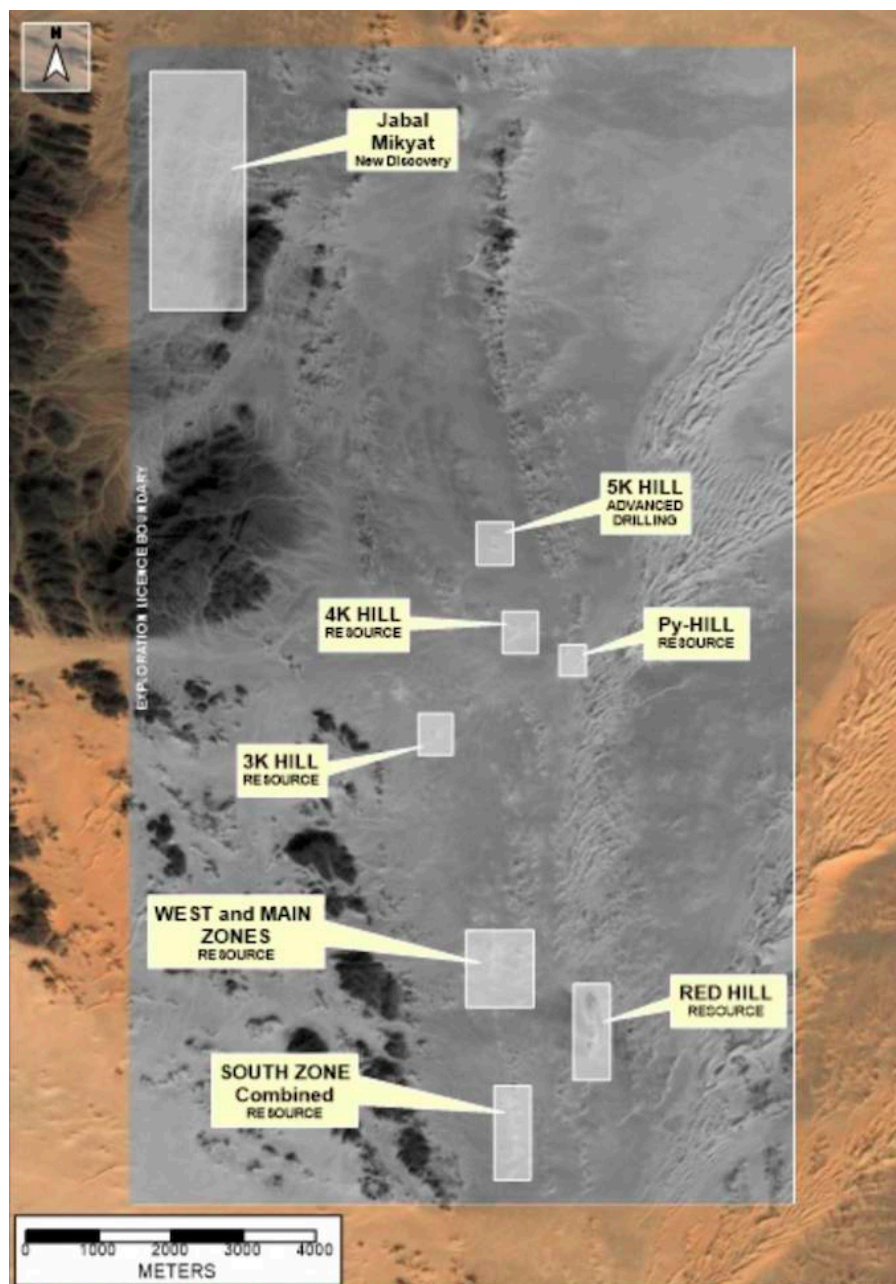
In May 2015, KEFI released an updated mineral resource estimate and a PEA for Jibal Qutman. The resource estimate was 28.4m tonnes at 0.8 g/t gold, containing 733,045 oz gold. This included an oxide resource of 11.1m tonnes at 0.8 g/t gold for 287,329 oz. The PEA outlined a 1.5m tpa heap leach operation to produce 139,000 oz gold over an initial 4.5 year mine life, at an average grade of 0.95 g/t gold, a gold recovery of 69% and a strip ratio of 2.18:1. Start-up costs for the project were estimated to be just US\$30m. In May 2015, when the PEA was released, KEFI's management believed the results sufficiently compelling to proceed to a PFS.

**Figure 41: Jubal Qutman mineral resource**

	Category	Tonnes millions	Gold g/t	Contained koz
Oxide	Indicated	8.3	0.86	229
	Inferred	2.8	0.64	58
	<b>Sub-total</b>	<b>11.1</b>	<b>0.80</b>	<b>287</b>
Sulphide	Indicated	9.7	0.86	269
	Inferred	7.6	0.72	176
	<b>Sub-total</b>	<b>17.3</b>	<b>0.80</b>	<b>446</b>
Oxide and sulphide	Indicated	18.0	0.86	498
	Inferred	10.4	0.70	235
	<b>Sub-total</b>	<b>28.4</b>	<b>0.80</b>	<b>733</b>

Source: KEFI

**Figure 42: Jibal Qutman map**



Source: KEFI

## Appendix 3: The Arabian-Nubian Shield

The Arabian-Nubian Shield is an accretionary orogeny at the northern half of a great collision zone called the East Africa Orogeny. It evolved between about 870 Ma (million years ago) and 550 Ma, and represents one of the largest tracts of juvenile Neoproterozoic crust in the world. The Shield measures more than 3,500 km north to south, and at its widest, more than 1,500 km east to west. It underlies an area of ~2.7 million km<sup>2</sup>. The Shield is exposed as part of the Sahara Desert and the Arabian Desert in the north, and in the Ethiopian Highlands, Asir Province in Saudi Arabia, and the Yemen Highlands to the south. It outcrops in nine countries; Jordan, Israel, Saudi Arabia, Egypt, Yemen, Sudan, Eritrea, Ethiopia and Kenya.

The region has a long history of geological activity, and was host to some of man's earliest mining efforts; ancient Egyptians mined gold from Egypt and northeast Sudan. The earliest preserved geological map, known as the Turin papyrus and showing gold deposits in eastern Egypt, dates back to 1,150 BC. Gold at Tulu Kapi is hosted in syenite. 'Syene' is the Greek name for Aswan, where the ancient Egyptian's mined granite. In Saudi Arabia, gold, silver, copper, zinc, tin and lead have been mined for at least 5,000 years. The Mahd adh Dhahab ("Cradle of Gold") mine is reputed to be the original source of King Solomon's gold.

### Tectonic setting

The East Africa Orogeny collision zone formed towards the end of the Neoproterozoic period when East and West Gondwana collided, forming the 'supercontinent' Gondwana. This process commenced with the break-up of former supercontinent Rodinia, the formation of oceanic basins, such as the Mozambique Ocean, and the growth of the shield, around 870 Ma. Shield growth lasted for 300 million years. Subduction zones were shaped within these basins, forming oceanic volcanic arcs. According to Abu Alam et al, two types of suture zone formed in the Arabian-Nubian Shield during the collision of these volcanic arcs. Arc-arc sutures trend mostly NE-SW and represent the zones of closure of the Mozambican basins between volcanic arcs at ~800 Ma to 700 Ma. Following these arc-arc collisions, the Arabian-Nubian Shield collided with pre-Neoproterozoic continental blocks (the Sahara Metacraton) around 680 Ma to 630 Ma. These arc-continent sutures trend north-south. Final assembly of the Arabian-Nubian Shield occurred around 550 Ma.

Shear-zone hosted gold mineralisation of the Arabian-Nubian Shield: devolatilization processes across the greenschist-amphibolite-facies transition; Tamer Abu-Alam, Mohammad Abd El Monsef and Eugene Grosch

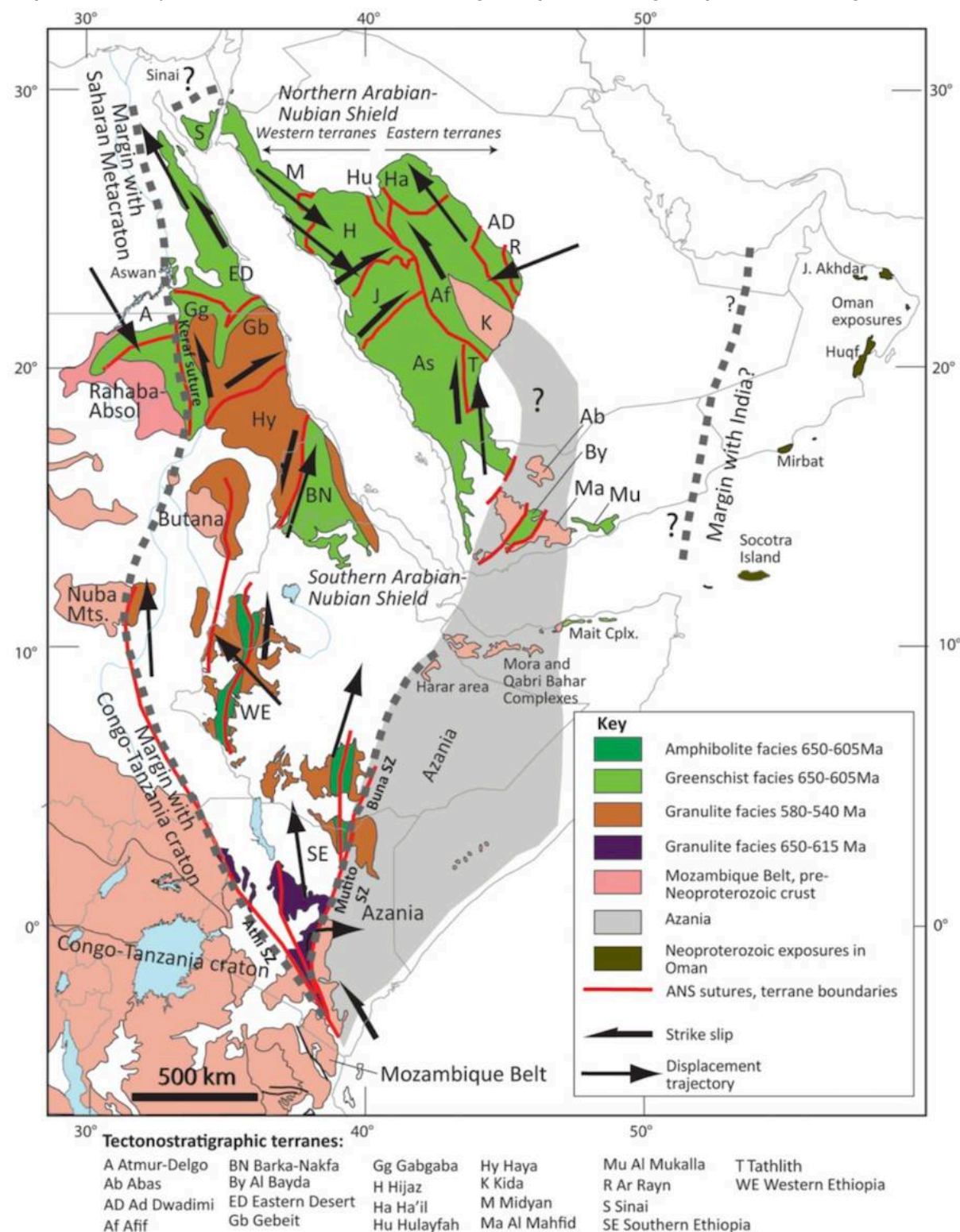
Late Cryogenian–Ediacaran history of the Arabian–Nubian Shield: A review of depositional, plutonic, structural, and tectonic events in the closing stages of the northern East African Orogen, 2011; P.R. Johnson, A. Andresen, A.S. Collins, A.R. Fowler, H. Fritz, W. Ghebreab, T. Kusky, R.J. Stern

An Expanding Arabian-Nubian Shield Geochronologic and Isotopic Dataset: Defining Limits and Confirming the Tectonic Setting of a Neoproterozoic Accretionary Orogen, 2014; P.R. Johnson

Tulu Kapi Gold Project: A history of repeated discoveries in Western Ethiopia; Fabio Granitzio, Jeff Rayner and Tadesse Aregay

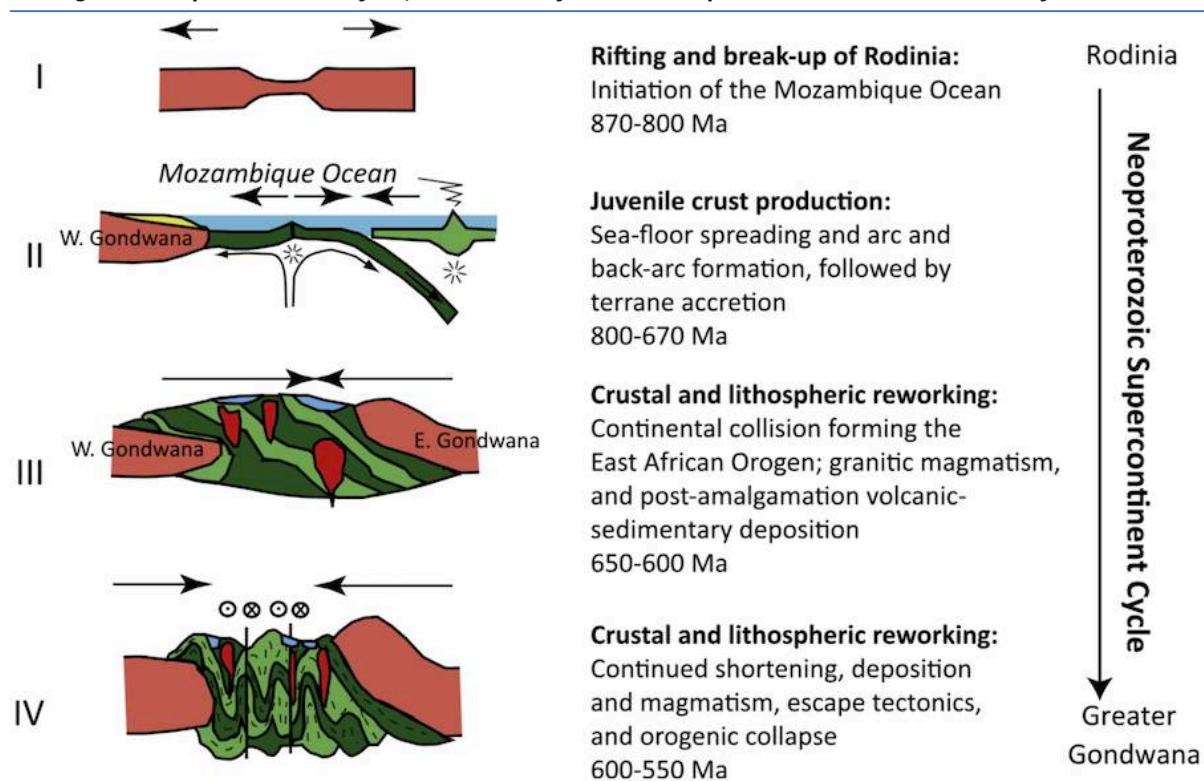
Gold-bearing volcanogenic massive sulphides and orogenic-gold deposits in the Nubian Shield, P.R. Johnson, B.A. Zoheir, W. Ghebreab, R.J. Stern C.T. Barrie, R.D. Hamer, 2017

**Figure 43: Structural and metamorphic map of the Arabian-Nubian Shield, showing tectonostratigraphic terranes, suture zones, the boundary between eastern and western arc terranes in the Arabian Shield and boundaries between the Arabian-Nubian Shield and flanking older crustal blocks. Arrows show displacement trajectories and sense-of-shear during transpressive orogenic phases in the region.**



**Source: An Expanding Arabian-Nubian Shield Geochronologic and Isotopic Dataset: Defining Limits and Confirming the Tectonic Setting of a Neoproterozoic Accretionary Orogen**

**Figure 44: Schematic illustration of stages in the development of the Arabian-Nubian Shield showing its setting in the supercontinent cycle, bracketed by the break-up of Rodinia and the assembly of Gondwana**



**Source: Late Cryogenian–Ediacaran history of the Arabian–Nubian Shield: A review of depositional, plutonic, structural, and tectonic events in the closing stages of the northern East African Orogen**

### Geological setting

The Arabian-Nubian Shield comprises mostly low-grade, greenschist metasedimentary and metavolcanic rocks, derived from ocean island-arc volcanism. Greenschists are metamorphic rocks that formed at low temperatures of 300-500°C and low pressures of 3-20 kbar, at crustal depths of 8-50 km. Ophiolites, pieces of oceanic crust that have been lifted above sea level onto the edges of continental plates, are abundant across much of the shield, from its northern extreme, almost to the equator. They range in age from 890 Ma to 690 Ma, documenting some 200 million years of oceanic magmatism, and they are found in suture zones dating from 780 Ma to 680 Ma, reflecting 100 million years of terrane convergence. High-grade metamorphic rocks were exhumed from beneath the low-grade sequence both in extensional and compressional settings. The Shield was intruded by plutonic rocks (igneous rocks formed at great depth) in different tectonic settings. Finally, younger rocks including dykes, molasses-type sedimentary rocks (sandstones, shales), potassium rich ('high-K') volcanic rocks, and alkaline granitic rocks were formed during the later tectonic stages of the Shield's evolution.

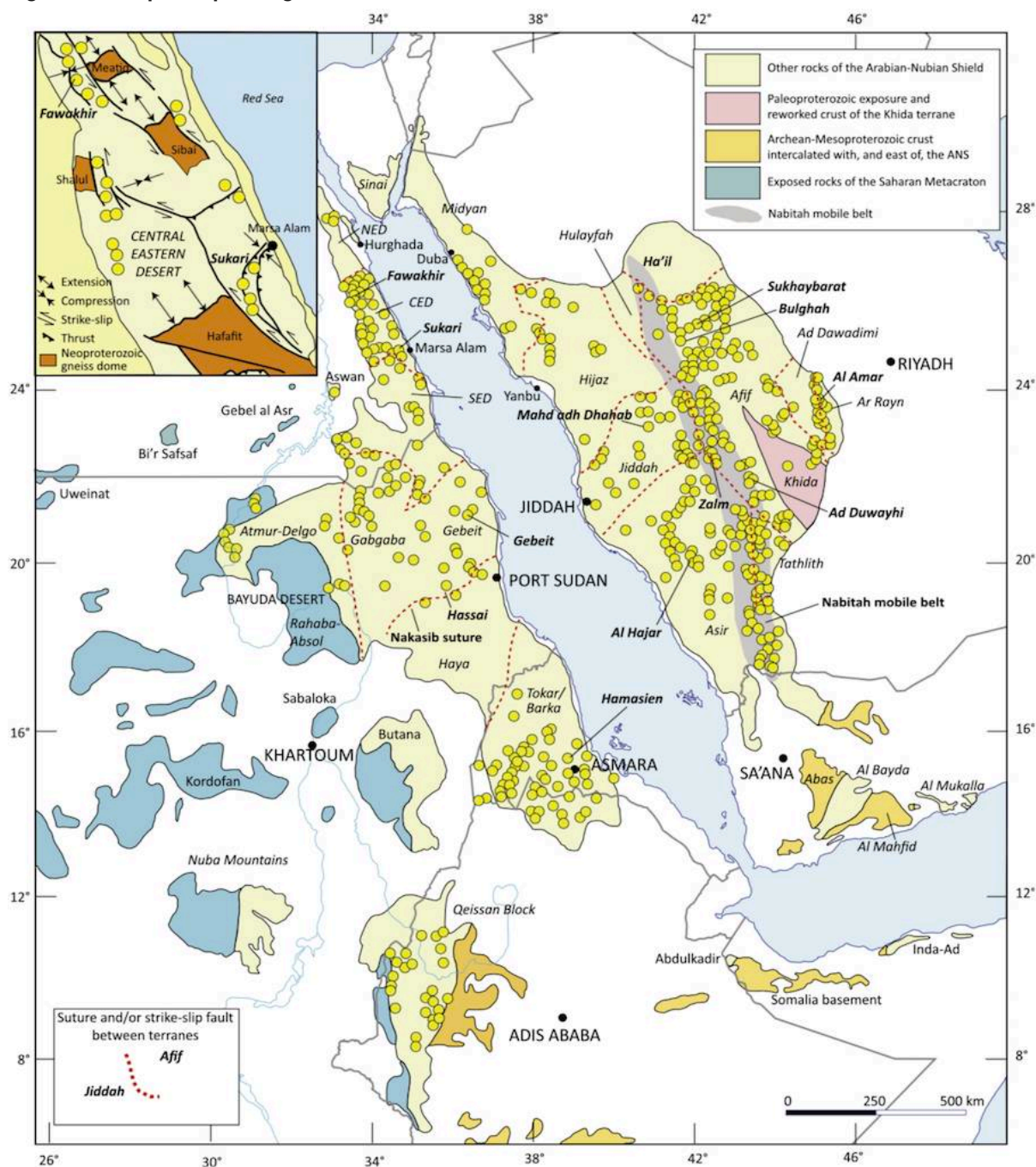
### Gold deposits

The Arabian-Nubian Shield hosts a number of different gold deposit styles, in a variety of tectonic settings. The occurrences are predominantly late Cryogenian–Ediacaran (650 Ma to 542 Ma) orogenic-type gold in a variety of structural and lithologic settings, though there are a variety of other deposit types. In the Arabia Shield, Madh Ad Dhahab and Al Amar are both epithermal gold, Ar Rjum and Ad Duwayah are intrusive related, and Mansourah and Mansarrah are listwanite deposits. In the

Nubian Shield, the main deposit types are orogenic gold and gold associated with VMS mineralisation. Gold bearing VMS deposits are mined at Bisha (Eritrea) and at Hassai (Sudan). Orogenic gold is mined Sukri and Hamash (Egypt), in Sudan, Eritrea and at Lega Dembi and Sakaro (Ethiopia).

**This combination of the subduction-related origin of the Shield, widespread shearing, and metamorphism associated with late Neoproterozoic orogeny are highly favourable for the development of these types of gold deposits.** The Arabian-Nubian Shield hosts the largest known Neoproterozoic gold resource on Earth.

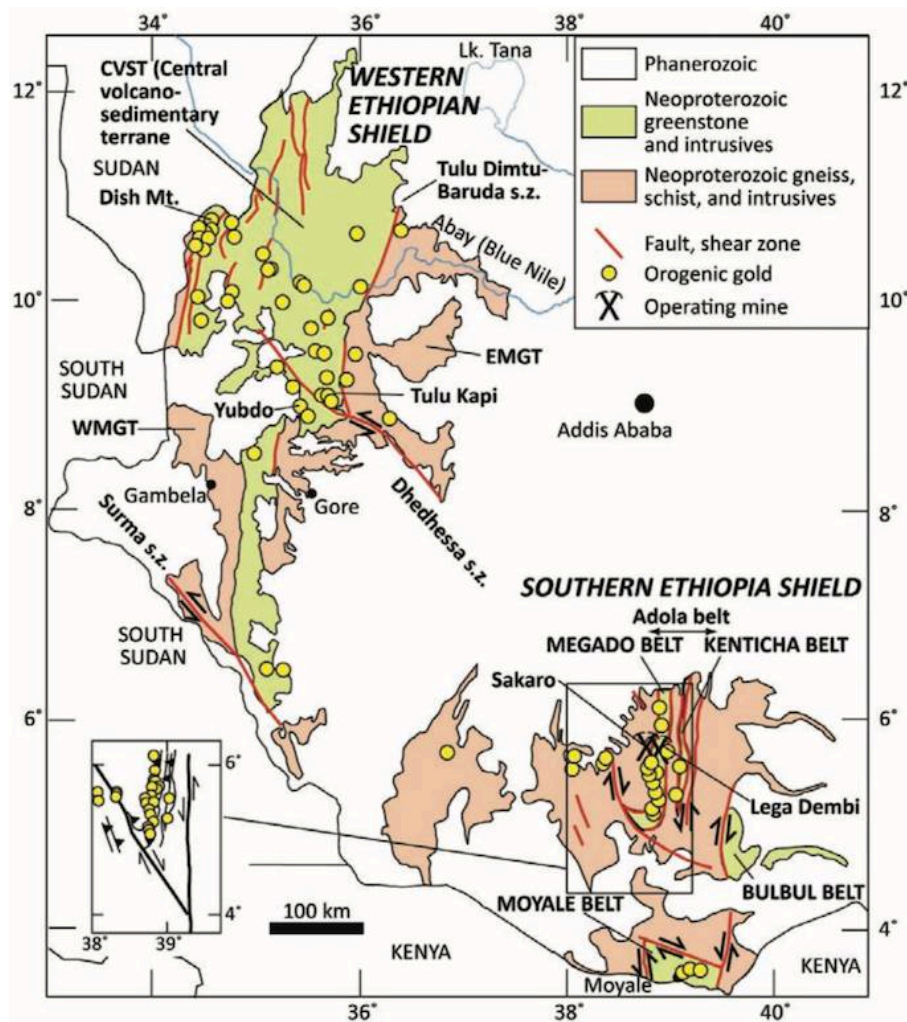
**Figure 45: Simplified plot of gold occurrences in the Arabian–Nubian Shield**



**Source: Late Cryogenian–Ediacaran history of the Arabian–Nubian Shield: A review of depositional, plutonic, structural, and tectonic events in the closing stages of the northern East African Orogen**

Tulu Kapi in Western Ethiopia, and Lega Dembi in Southern Ethiopia are both orogenic gold deposits. The Tulu Kapi deposit is hosted by syenite in strongly sheared metavolcanic and metasedimentary rocks in what is known as the central volcano-sedimentary terrane greenstone belt.

Figure 46: Gold occurrences and producing mines in Western and Southern Ethiopia



Source: Gold-bearing volcanogenic massive sulphides and orogenic-gold deposits in the Nubian Shield; P.R. Johnson et al, 2017

## Appendix 4: Companies mentioned

<b>Company</b>	<b>Code</b>
KEFI Gold and Copper	KEFI.L
African Gold Group	AGG.V
Barrick Gold	GOLD
Caledonia Mining	CMCL
Cardinal Resources	CDV.AX
Galiano Gold	GAU
Golden Star	GSS
Hummingbird Resources	HUM.L
Inchcape Group	INCH.L
Megado Gold	MEG.AX
Newcore Gold	NCAU.V
Newmont	NEM
Orca Gold	ORG.V
Orezone Gold Corp	ORE.V
Perseus Mining	PRU.AX
Roxgold	ROXG.TO
Shanta Gold	SHG.L
Sun Peak Metals	PEAK.V
Thor Explorations	THX.V
Tietto Minerals	TIE.AX
West Africa Resources	WAF.AX
Yara International	YAR.OL



**The author**

Simon Francis is a UK qualified chartered accountant with significant experience in the natural resources and minerals sector. Simon led research in the sector in various roles at major financial institutions including Macquarie, Samsung and HSBC, in a career spanning more than 20 years. He has been involved in approximately US\$4bn of capital raising, for a number of natural resources companies. Simon has been engaged in the financing of early stage companies using production agreements, and has privately funded exploration companies in various metals and jurisdictions. Simon seeks to deploy capital in undervalued mining and resources opportunities that have been missed by the market.